

AMERICAN BEE JOURNAL

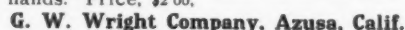
NOVEMBER, 1916



Experimental Apiary at the Ontario Agricultural College at Guelph

H. D. MURRY, Mathis, Texas

E. E. MOTT, GLENWOOD, MICH.



Beekeeper's Guide, by A. J. Cook—This book on bees is also known as the "Manual of the Apiary." It is instructive and interesting, as well as practically scientific. It has 544 pages and 295 illustrations. Bound in cloth. Price, postpaid, \$1.20; or with a year's subscription to the American Bee Journal, both for \$1.80.



American Bee Journal

Grading Rules of the Colorado Honey-Producers' Association, Denver, Colo., Adopted Feb. 6, 1916.

All honey sold through the Colorado Honey-Producers' Association must be graded by these rules.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, comb and cappings white, or slightly off color. Combs not projecting beyond the wood, sections to be well cleaned. No section in this grade to weigh less than 12½ ounces net or 13½ ounces gross. The proof each section in this grade must be stamped, "Net weight not less than 12½ ounces."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

No. 1.—Sections to be well filled, combs firmly attached, not projecting beyond the wood and entirely capped, except the outside row next to the wood. Honey, comb and cappings from white to light amber in color. Sections to be cleaned. No section in this grade to weigh less than 11 ounces net or 12 ounces gross. The top of each section in this grade must be stamped, "Net weight not less than 11 ounces." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

No. 2.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 ounces net or 11 ounces gross. Also of such sections that weigh 11 ounces net or 12 ounces gross, or more, and have not more than 50 uncapped cells altogether, which must be filled with honey. Honey, comb and cappings from white to amber in color. Sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 ounces." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

COMB HONEY THAT IS NOT PERMITTED IN SHIPPING GRADES.

Honey packed in second hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured or patched up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells or a less number of empty cells.
Sections weighing less than the minimum weight.
All of such honey should be disposed of in the home market.

EXTRACTED HONEY

Must be thoroughly ripened, weighing not less than 12 pounds per gallon. It must be well strained and packed in new cans, 60 pounds shall be packed in each 5 gallon can, and the top of each 5-gallon can shall be stamped or labeled, "Net weight not less than 60 pounds."

Extracted honey is classed as white, light amber and amber, the letters "W," "L. A.," "A." should be used in designating color, and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new, substantial cases of proper size.

STRAINED HONEY

Must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained, and if packed in 5-gallon cans each can shall contain 60 pounds. The top of each 5-gallon can shall be stamped or labeled "Net weight not less than 60 pounds." Bright clean cans that previously contained honey may be used for strained honey.

HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans.
Ripe or fermenting honey, weighing less than 12 pounds per gallon.
Honey contaminated by excessive use of smoke.
Honey not properly strained.
Honey contaminated by honey-dew.



**NEW BINGHAM
BEE SMOKER**
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BINGHAM BEE-SMOKER

Nearly forty years on the market and the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the world. For sale direct or by all dealers in Beekeepers' Supplies.

Smoke Engine, 4-inch stove.....	28 oz.	\$1.25
Doctor, 3½-inch stove.....	26 oz.	.85
Two larger sizes in copper extra.		.50
Conqueror, 3-inch stove.....	23 oz.	.75
Little Wonder, 2½-inch stove.....	16 oz.	.50

Hinged cover on the two larger sizes postage extra.

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TIN HONEY CANS—LOW PRICES

5-lb. friction-top pails, lots of 50 at \$2.75; 100 lots, \$5.20; crates of 203 at \$10.
10-lb. friction-top pails, lots of 50 at \$4.00; 100 lots, \$7.50; crates of 113 at \$8.30; 565 at \$40.
f. o. b. Chicago.

60-lb. cans, two in a case, 70c per case; quantity lots, 67c per case; crates of 50 at \$12 f. o. b. Chicago or Ohio factory. Prompt shipments are being made at this time.

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The CANADIAN HORTICULTURIST AND BEEKEEPER

The only bee publication in Canada

It is the official organ of the Ontario Beekeepers' Association, and has incorporated with it the former Canadian Bee Journal.
Beekeeping and Horticulture in its various branches are effectively combined to form a live, attractive, and practical monthly magazine.

Well illustrated and up-to-date. Subscription price postpaid.
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DADANT & SONS, Hamilton, Illinois

American Bee Journal

The New Edition of the A. B. C. and X. Y. Z. of Bee Culture **BIGGER AND BETTER**

A large number of the old articles have been rewritten. Many new articles that never appeared before in any former edition occur in this one.

THE CHEMISTRY OF HONEY

A. Hugh Bryan, formerly connected with the Bureau of Chemistry, Washington, D. C., and who at the time made a speciality of honey, has written the articles dealing with the chemistry of honey, glucose, invert sugar, nectars, adulterations, etc. He has also written a special article for the benefit of chemists, on how to analyze honey.

Since the introduction of artificial invert sugars, new methods have to be employed; and these are set forth in this new edition so that any chemist will be able to use the very latest information that has been available to the Bureau of Chemistry, Washington, D. C.

BEE BOTANY

This is being handled by John H. Lovell, of Waldoboro, Maine, a beekeeper, botanist, been and an entomologist. Some new species have been added, and in other cases the descriptions have made more complete.

PRACTICAL ARTICLES

These have been revised and rewritten by the editors of GLEANINGS. All the latest methods of management have been incorporated. Articles on bee diseases have received entirely new treatment, especially those relating to European foulbrood and the Isle of Wight disease.

WINTERING

The articles on wintering will include the latest discoveries of the Bureau of Entomology pertaining to winter temperatures, winter activities and winter packing.

The new volume will contain something over 900 pages, and will sell for \$2.50. It will be ready for delivery about January 1.

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THE CAMPBELL SYSTEM OF SOIL CULTURE

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where the Campbell System of Scientific Soil Tillage and Crop Growing are taught by mail, where a thorough knowledge of Scientific Agriculture can be secured without leaving home, at a very small expense. If you are a farmer or expect to be a farmer, send for the Campbell literature, Campbell's Scientific Farmer, the Campbell manuals, and a catalog of the Campbell Correspondence School. Sample copy and catalog free. Address,

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This book is very interesting when read in connection with the Revised Langstroth. Many are surprised at the number of devices mentioned by Langstroth years ago, which are re-written as new today. We offer the old reprint at a special postpaid price of \$1.00.

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Langstroth Revised, \$1.20		American Bee Journal, \$1.00	

All three above for \$2.50

American Bee Journal, Hamilton, Illinois.

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Don't make the mistake of putting a fine lot of section honey in poor shipping cases. It will lower the price to you and damage your future sales. "falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping Cases in Flat, Without Glass				Shipping Cases, With Glass					
No.		10	100	Number and description	Nld	In flat, with 3-in. glass			With 2 in. glass ⁵
						I	10	100	100
1	holding 24 sections, 4½x1½, showing 4	2 00	18 00	11 Same as No. 1	35				
3	holding 12 sections, 4½x1½, showing 3	1 30	11 00	13 Same as No. 3	.22	.25	\$2 30	21 00	20 00
1½	holding 24 sections, 4½x1½, showing 4	1 90	17 00	11½ Same as No. 1½	.15	.15	1 40	12 50	12 00
6	holding 24 sections, 3¾x5x1½, showing 4	1 80	16 00	16 Same as No. 6	.30	.22	2 20	20 00	19 00
8	holding 24 sections, 4x5x1½, showing 4	1 80	16 00	18 Same as No. 8	.30	.22	2 05	19 00	

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Where the good bee-hives come from

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If comb honey, state grade and how it is put up, and your lowest price delivered Cincinnati. Extracted honey, mail a fair size sample, state how it is put up, and your lowest price delivered Cincinnati.

If prices are right, we can use unlimited quantities.

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Get our "Scarified," sweet clover seed which will germinate from 85 to 95 percent the first year and thus insure you a good stand right from the start. By sowing our seed you will save money, as it only takes about half as much scarified to sow an acre as ordinary hulled seed.

PRICES

	1 lb.	10 lbs.	30 lbs.	100 lbs.	Per bu. 60 lbs.	5 bu. lots per bu.	10 bu. lots per bu.	Lbs. per acre
Unhulled White Sweet Clover Recleaned	25C	\$2.00	\$5.10	\$16.00		\$ 4.80	\$ 4.50	25 to 30
Hulled White Sweet Clover recleaned and scarified	30C	2.75	6.75	22.50	\$13.50	13.00	12.50	6 to 10
Hulled Yellow Sweet Clover, recleaned and scarified "Melilotus Officinalis"	20C	1.80	5.10	17.00	10.20	9.50	9.00	8 to 12

When seed is wanted by parcel post, be sure to include postage. Bags will be included in the weight in parcel post shipments.

PLEASE NOTE—All of our seed is thoroughly cleaned. The scarifying process usually breaks some of the seeds and we remove all broken seeds. This is an important saving to you. Samples on application.

YELLOW SWEET CLOVER—Many people fail to recognize the value of the biennial yellow sweet clover as a honey plant. The fact that it blooms two weeks earlier than the white variety makes it especially valuable to the beekeeper.

Be sure, however, to get the biennial variety as quoted above.

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American Bee Journal. 1.00

Our price on the two magazines for one year is only \$3.25.

American Bee Journal, Hamilton, Illinois

How About Next Year?

The season of 1916, just closed, has been a most unusual one. Beekeepers who did not fortify themselves early in the season by securing their hives, sections and other goods and having their equipment ready for the bees, found when the honey season was upon them that they were up against the following conditions:

Everybody wanted bee goods—dealers had depleted stocks on account of the unusual demand
—manufacturers were several weeks behind on orders—their factories were working overtime,
some beekeepers were delayed, some disappointed, some got their goods when it was too late.

Now, Mr. Beekeeper, What are You Going to Do About Next Season?

Prospects for a big Bee and Honey Season next year were never better than they are right now. PREPARE!! Order your goods this fall. Write us or our dealer nearest you for a list of new prices, owing to advances in raw material.

If you are not on our mailing list, write us at once and we will send you a catalog containing name of the distributor nearest you, and in this way you will also be sure to receive a copy of our new 1917 catalog when it is issued.

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Vol. LVI.—No. 11

HAMILTON, ILL., NOVEMBER, 1916

MONTHLY, \$1.00 A YEAR

GLIMPSES OF ONTARIO

Scenes Visited by Our Staff Correspondent During a Visit With
Our Northern Neighbors

It was June, the days were balmy and flowers bloomed everywhere. It had been raining day after day until the farmers were in despair. But the clouds had recently lifted, and, being neither hot nor cold, the season was delightful. Ontario is a beautiful country in summer, and June is the month to see it at its best. My first stop was at Chatham, where I was royally entertained by Mr. W. A. Chrysler, who is one of the well known beemen of the province. At one time Mr. Chrysler was extensively engaged in the supply business, but a disastrous fire which made it necessary to begin at the bottom again as far as manufacturing was concerned, decided him to take up the production of honey again as his principal dependence. He now has several apiaries, but operates a central extracting plant, preferring to bring the

honey home to extract rather than to carry a small outfit from yard to yard. Mr. Chrysler has a son who is a genius with machinery and who has fixed up many handy contrivances about the extracting house. They are fortunate in being situated in the natural gas belt and run all machinery with natural gas. The son has made over a gasoline engine to run with gas so that their extractor and such other machinery as they use is run by this power. The settling tanks are ranged in a row along one side of the honey-house with overflow pipes from one to another so that there is no danger of running over.

An automobile is used for going to and from the outyards. Our first illustration gives a good idea of the light crate which is used to hold the load. All about the place are evidences of a

mechanical handy man, and if space would permit a whole page might be used to describe the various shortcuts which they practice. In the October issue we already gave an account of the Chrysler feeder and bottom combined which they use under their hives. The second photograph shows a corner of the home yard. It was formerly surrounded by a solid board fence, but every other board has been removed and it still breaks the wind and avoids the suction which was formerly noticeable as the wind swept down over the fence.

In Mr. Chrysler's car we made the trip to Merlin on the lake shore to visit the Deadman apiary. Mr. G. A. Deadman, who is a druggist at Brussels, spends his summers with his bees at Merlin. He has 350 colonies in one yard, which is probably the largest number kept in a single yard in the province. Beside the honey-house is a long open shed for storage purposes and some enclosed rooms to furnish the beekeepers with pleasant quarters during their summer stay. Mr. D. Barone, of Italy, son of a well-known Italian writer on beekeeping, and himself a beekeeper of note, was assisting Mr. Deadman for the summer. Miss Freya Hahn, of Toronto, was also there, serving an apprenticeship. The writer met an unusual number of ladies who are beekeepers in Ontario, and fully as enthusiastic as the men.

One would question the possibility of support of such a large number of colonies in one yard, but in a favorable season the average production is around 100 pounds surplus per colony which we would regard as very good in the Mississippi Valley States. Mr. Deadman uses a brood-frame $12\frac{1}{2} \times 11\frac{1}{4}$, which is a size not commonly used. However, he seems to be well satisfied with results obtained from its use. The ground about Merlin is very level, and because of the excessive rainfall during the spring, there was some difficulty in

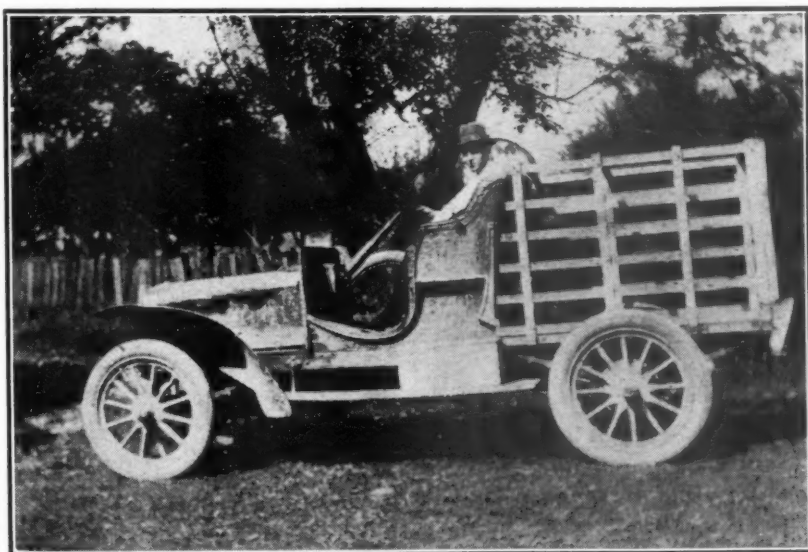


FIG. 1.—CHRYSLER AUTOMOBILE FOR OUTYARD WORK

American Bee Journal

keeping the hives dry. Water was still standing about, and we were informed that it was very unpleasant earlier. However, the big clover flows usually follow a surplus of moisture and a bumper crop has been reported in many sections of Ontario this season. Instead of using one large extractor as is often the case in large apiaries, two 4-frame extractors run from a line shaft are in use at the Deadman apiary. The contention is that two 4-frame extractors can be run to better advantage than one 8-frame machine and with less power. While one is running, the other can be filled so that the whole outfit is not idle during the time necessary to change frames, as is the case where a large machine is used. The super cleaner described last month is a unique device which originated here.

At Lambeth there are three extensive beekeepers within a stone's throw of each other. Two live on adjoining lots and the third lives across the street. In our last number we showed the picture of Mr. W. D. Campbell, and Fig. 4 in this issue shows the other two, Mr. E. T. Bainard and Mr. D. Anguish. Mr. Bainard very generously took his car and drove to as many yards as there was time to see. At Mr. Campbell's yard we found the 4-piece section in use. Mr. Campbell follows the plan advocated by Dr. Miller of using two hive bodies for brood-rearing, reducing to one set of frames for the honey flow.

Mr. Bainard uses the Heddon sectional hive very successfully. I have always been prejudiced against this hive until I saw it in use by men who produce very large crops of honey in Ontario. It must be admitted that in the hands of skillful men it brings good results. Still I often wonder whether the men who get such crops with these shallow hives, would not get more honey if they used a deeper frame. Beekeeping after all depends mostly on

the man. Figure 5 shows the colonies arranged in groups of four, which permits the use of quadruple winter cases without moving them.

Mr. Bainard is a great experimentalist, and certainly has his head full of interesting ideas. At the time of my visit he was endeavoring to learn whether by means of a frame placed between two of the shallow hive bodies, horizontally instead of vertically, all queen-cells would be placed there. If so, it would be an easy matter to ascertain when the colony was preparing to swarm by looking at the one frame instead of having to look through the whole colony. Some of the colonies

were building queen-cells on these flat combs, and I await with interest the result of the summer's experiment. He has tried pound packages from the south for increase for several years with varying results. Some seasons when conditions were favorable he has had a single pound of bees build up and produce as much as 60 pounds of surplus honey. However, he has found great variation with the different packages received at the same time and given the same attention. Probably better results will come after more attention has been given to the selection of breeding stock. Mr. W. E. Wright, of Glanworth, is a farmer who keeps



FIG. 2.—THE CHRYSLER HOME APIARY AT CHATHAM, ONTARIO



FIG. 3.—THE BEES IN THE DEADMAN APIARY ARE LEFT IN THE PACKING CASES UNTIL JUNE

bees as a sideline. He has a fine flock of prize winning sheep and has carried away many of the blue ribbons at the Toronto show for many years. His apiaries, while not as extensive as those of exclusive beekeepers, still add materially to the revenue of the farm.

Mr. F. W. Krouse, President of the Ontario Association, is located near the Agricultural College at Guelph. Our impressions of the school are given in a separate article. Mr. Krouse began with two colonies in connection with market gardening and has gradually extended his apiaries and dropped other lines. He has several yards within a few miles of Guelph and expected to have nearly 500 colonies at the close of this season. There is an abundance of willow and dandelion to start with. In addition there is white clover, alsike, basswood and buckwheat so that failure at this particular apiary has never yet occurred. Since something always yields, and in some seasons everything does, his average in this yard is about 100 pounds per colony per year. If it were possible to find such locations for all his bees, Krouse would have a bonanza. However, he is doing very well and finds a ready sale for his honey at profitable prices.

The winter case described in our last

American Bee Journal

issue is in evidence in all his yards. It can hardly be called a winter case since it remains in place all the year around. Two of his outyards are shown herewith. In one is shown a honey-house on wheels. It was formerly used as a show wagon, and is well adapted for the purpose to which Mr. Krouse has put it.

Miss R. B. Pettit, who is a sister of the Provincial Apiarist, is a very successful beekeeper. She lives at Georgetown. Her brother, Prof. Pettit, gives her some assistance during his vacation

what is on any particular hive.

At Niagara Falls, Ont., we found a very complete outfit for honey production at the home of Mr. U. H. Bowen, who is a member of the government customs staff. Mr. Bowen has suffered an unusual loss of bees the past season in a very mysterious manner. All his bees were wintered in the large cellar under his two-story honey-house. When removed from the cellar near the middle of April they seemed to be in good condition. One hundred and twenty colonies were left in the home-

yard and 100 colonies removed to an outyard. Of the 120 colonies in the home-yard less than 20 had any bees at all at the time of my visit in June, and only one of these was strong enough to build up without help in the way of brood or bees. Many of the hives contained a queen and only a dozen or two of bees. At the outyard conditions were much better, although evidences of the same trouble were to be seen. Some of the colonies were working in supers, and there was a prospect for something of a crop. Few colonies were lost entirely at the outyard.

The trouble started suddenly on a warm day in early May. After a rain adult bees were to be seen everywhere in the grass. They could not fly, but jumped about in front of the hives in an effort to do so. The newly emerged bees which had not previously gone afield seemed to be affected worse. By the middle of June the entire apiary was practically gone. Colonies which were short of stores and those which had an abundance of honey were alike affected. Mr. Bowen could offer no explanation of the trouble neither could Prof. Pettit. The writer has heard this strange condition discussed among beekeepers several times the past summer, and the only plausible explanation offered is that the bees had been poisoned in some way.

Mr. Bowen has a very fine honey-house which is shown at Fig. 9. On the main floor there is a power-driven extractor, capping melter, honey pump and every possible convenience for handling the honey with a minimum of trouble. The upper story is used for storage. At the outyard there had been some meddling with the bees at night, so Mr. Bowen placed a warning sign on a post at the corner of the yard. Figure 8 shows how a robin took advantage of the protection of this sign to build her nest on the post.



FIG. 4.—MR. E. T. BAINARD AND D. ANGUISH, OF LAMBETH, IN THE LATTER'S APIARY

times in order to keep in practical touch with the work. A teacher who lives always in contact with books is likely to become stale, and he is a wise one who takes off his coat occasionally and gets into the real work of his specialty.

At each place visited we found abundant material for a whole story, but our space will only permit of a brief glimpse, and we are compelled to hurry on. At Beamsville Mr. A. E. Hoshal is extensively engaged in honey production. Like Mr. Bainard he uses the Heddon hive. We spent some interesting hours with him. His metal winter case described last month is light, inexpensive and easy to handle. It impressed the writer as the best all around winter case for a single colony that he had seen. Nearly every really successful beekeeper has developed something new, which his particular system or location makes practical, and the visitor is quick to note these new ideas. Mr. Hoshal is very efficient in his methods, and everything about the apiary is planned to eliminate unnecessary labor. His excluders are painted blue, bee-escapes red, and screens still another color, so that in passing through the yard he can tell at a glance



FIG. 5.—ONE OF THE BAINARD APIARIES IN HEDDON HIVES

American Bee Journal

Some Prominent Ontario Beekeepers

BY MORLEY PETTIT, PROVINCIAL APIARIST.

I HAVE been asked to give an account of some leading beekeepers in Ontario. There are about 10,000 persons keeping bees in Ontario, and many of these are making a considerable portion of their living from them. It will be seen, then, that the number of persons who might be called "leading beekeepers in Ontario," is greater than the space limits of this article would cover. Besides those at present actively engaged in the industry, there is also a long list of men who have had their part in bringing the industry to its present status and should not be overlooked. It is hoped, therefore, that the following records will be considered as only a partial list, rather hastily gotten together, in which many persons worthy of mention have been overlooked.

As the industry has centered largely around the Ontario Beekeepers' Association, an organization which has been active for about 37 years, it will not be out of place to sketch briefly the history of this association, giving special attention to those who have taken an active part in its development.

The organizing meeting of the Ontario Beekeepers' Association was held in the City Hall, Toronto, Aug. 14, 1880. There were about 60 beekeepers present, representing all sections of Ontario, and some from the United States and Manitoba.

The following officers were elected:

President, D. A. Jones, Beeton; Vice-presidents, Dr. Shaver, Stratford, and Hon. Lewis Wallbridge, Belleville; Secretary - Treasurer, R. McKnight, Owen Sound.

Although the association was organized as the "Canadian Beekeepers' Association," it was soon after changed to its present name.

The earliest record we have of the new president, Mr. D. A. Jones, is in 1871, when he reported in the American Bee Journal, page 56, an apiary of six stocks in movable frame hives and one box hive. From the six he took 1707 pounds and nine swarms. He also had apiaries away from home managed by friends. In 1879, he reported 600 colonies in four apiaries, with a crop of from 50,000 to 70,000 pounds. He gave white clover, basswood, raspberry and thistle, willow-herb, goldenrod, and boneset as his main honey plants, and was at that time experimenting with white sweet clover. For few years he maintained a School of Apiculture, using young Canadians who were anxious to learn the business as assistants in his apiary. Some of our leading Ontario beekeepers received their first lesson in this way.

In 1880, along with Frank Benton, of Washington, D. C., Mr. Jones visited Italy, Cyprus, Palestine and other Eastern lands in search of new varieties of bees. He sent home samples of Cyprian bees, Holy Land bees and others, and expected great things from them. While they seemed to be good workers, they had objectionable features, however, and have not come into general use.

Mr. Jones was one of the first to exhibit honey at Toronto Fair, that great annual exhibition, which has developed into the present Canadian National Exhibition, recognized as the greatest annual fair of this kind in the world. He also did a considerable amount of speaking at local beekeepers' conventions.

The president of the Beekeepers' Association in 1882, was the Hon. L. Wallbridge, of Belleville. His town was the center of beekeeping activities in the early days, the Bay of Quinte Beekeepers' Association being located in that district.

The vice-president that year was Mr. J. B. Hall, of Woodstock. Mr. Hall was one of the best known pioneer beekeepers of Ontario, being a successful producer of comb honey, and an extensive exhibitor at Toronto Fair. He lived at Woodstock, was a most careful and thorough man, and some of our most successful beekeepers at the present day were students of his; the best known perhaps being Mr. John Newton, of Thamesford, who is at present a director of the association. Mr. Hall was president in 1895, and was for a number of years after that an honorary member of the association.

In 1883, another pioneer, Mr. R. McKnight, of Owen Sound, occupied the chair. Mr. McKnight is one of the very few founders of the association still living. At last reports he was liv-

ing retired at Owen Sound, and for a number of years has not taken an active part in public life.

has always been a doer of big things. He was at one time editor of the Canadian Bee Journal, and manager of the leading bee supply business in the country. When he took up beekeeping more extensively and gave up the supply business, he built two very large bee-cellars in the vicinity of Brantford for two different firms in successive seasons. Neither of these cellars is at present being used for bees, however, as outdoor wintering was found to be more practical. Three 12-frame extractors are used in the business at present, also, of course, an automobile and motor truck for transportation. For a number of years he has conducted a sort of School of Apiculture, training young men to become beekeepers in the extensive operations in the large apiaries of which he has charge.

In 1884, the president was Mr. S. Corneil, of Lindsay. Mr. Corneil's son, George, is at present a successful beekeeper in that town. George Corneil is one of the many examples of men giving up other lines to become beekeepers. During a time when he was out of employment in his regular trade on account of a strike, he took up beekeeping. By the time the strike was over he was making more from his bees than he had ever made from his trade and therefore, refused to go back, so he is now a successful beekeeper.

Dr. Thom, of Streetsville, was presi-



FIG. 6.—A KROUSE OUTYARD WHERE THE AVERAGE IS 100 POUNDS PER COLONY

dent in 1885, and during the years of 1886 and 1887, the chair was occupied by Mr. S. T. Pettit, of Belmont. This was rather an important period in the life of the association, as the first large honey exhibit was sent abroad, namely to the Intercolonial Exhibition in London, England, in 1886. Legislation was also secured at Ottawa, to protect the purity of Canadian honey from adulteration and imitation. A thorough workman and careful investigator, Mr. Pettit did much to improve methods of

The secretary-treasurer that year was Mr. R. F. Holtermann, who is well known to beekeepers of the present day. He was president in 1896, and is still actively engaged in beekeeping, being manager of something like 800 colonies for the firm of Foster & Holtermann of Brantford. These apiaries are located in one of the best alike districts of Ontario. Mr. Holtermann..

ing retired at Owen Sound, and for a number of years has not taken an active part in public life.

American Bee Journal

comb honey production. He was also very successful with cellar wintering.

The president in 1888, was Martin Emigh, of Holbrook. Mr. Emigh is a quiet man of sterling qualities, and for a number of years after occupying the president's chair he acted as treasurer of the association. We have not seen anything of him lately at beekeepers' meetings, but hear that he has become prominent in local telephone circles in his own district.

Another outstanding character in Ontario beekeeping and agricultural life in the early days was Mr. Wm. F. Clarke, former editor of the American Bee Journal, who was president of the Beekeepers' Association in 1889. He was the first lecturer in beekeeping at the Ontario Agricultural College, and the writer frequently hears amusing stories of his experiences with the students. It seems that he was not always able to hold their attention, and to quiet them would promise to recite some of his verses at the end of the lecture if they would be good. These would be quotations from a little volume of verses which he published in 1886, entitled "Bird's Eye View of Beekeeping." Readers of the American Bee Journal will appreciate the following extract:

"Take a bee-paper, that you may find out
What other Apiculturists are about,
Unless you read the journalistic page,
You'll fall behind the progress of the age.
Journals abound, from the 'American'
That five and twenty years ago began
Shedding the light of knowledge to and fro,
To the 'Canadian' which a year ago,
Boldly its banner to the breeze unfurled,
The first in weekly in the world."

During the time that Mr. Clarke oc-

has been attached. He acted as the sole inspector in Ontario for nearly 20 years, and came to be well known for his genial nature and ready Irish wit from one end of the province to the other. At every convention as long as he lived, Mr. McEvoy was always on hand to do his part in keeping things going in the way of discussion, controversy and fun. Aside from discussions of bee-disease, I believe one of his best ideas was one which usually caused a laugh, not so much at the idea as at the quaint way he had of expressing it. He said that during the spring the larvæ must always be well fed to keep them "fat." If the larvæ were not kept "fat," they would not develop healthy bees. He was the first, so far as I can learn, to publicly advance the idea that spring stimulative feeding is not so much to stimulate the queen, as to stimulate the nurse bees to make them feed the larvæ well, and as he expressed it, "keep them fat." The McEvoy apiaries are now managed by his sons—most capable young men.

During 1890 and 1891, Allen Pringle, of Selby, was president, and in 1892 and 1893, Mr. F. A. Gemmell, of Stratford, occupied the chair. Mr. Gemmell is best known on account of improvements he placed on the Hatch wax-press, which came to be called the Hatch-Gemmell press.

In 1894, the president was Mr. A. Pickett; in 1895, Mr. J. B. Hall, and in 1896, Mr. R. F. Holtermann.

J. K. Darling, of Almonte, was president in 1897. Aside from his successful apiary, Mr. Darling was an extensive farmer, specializing in dairy cattle.

County Beekeepers' Association meets to spend an enjoyable afternoon. Mr. Holmes is peculiarly adapted to act as host on such occasions, being endowed with dry humor and a ready wit. He is a successful beekeeper, having his apiary in splendid condition, and is much respected by the beekeepers of his community.

Mr. W. J. Brown, of Chard, was president in 1899, and C. W. Post, of Trenton, in 1900. Mr. Post was at one time extensively engaged in migratory beekeeping, moving up the Trent river for basswood and down in Prince Edward county for buckwheat.

Mr. John Newton, of Thamesford, a pupil of the late J. B. Hall, was president in 1901. Mr. Newton has been director for his district for a number of years, also secretary of the Oxford County Beekeepers' Association, one of the oldest county associations in the province. He has a small bee supply business, specializing in comb foundation, in connection with his apiary. At the annual convention, Mr. Newton can always be depended upon to help in discussions and handle question drawers.

In 1902, Mr. J. D. Evans, of Islington, was president. A successful beekeeper and a genial friend, Mr. Evans has always been an out-spoken member of the association, never afraid to express his views even though they were radically opposed to the general opinion of the meeting. One of his pet schemes, has been that every beekeeper should be taxed on a per colony basis; the money thus collected being used for the purpose of controlling bee diseases. The idea has never been very favorably received by the majority of the members present, on the basis that we are usually taxed sufficiently without asking for more.

In 1903, Mr. W. A. Chrysler, of Chatham, was president. Mr. Chrysler is a sectional hive man and has for some time conducted a successful bee-supply business in connection with his apiaries. His son Ernest is now in partnership with him, and holds the position of director of the association for his district.

In 1904, Mr. J. W. Sparling, of Bowmanville, was president. Mr. Sparling was at one time an active exhibitor at Toronto, and closely associated with the organization. Of late years he has not appeared so much at beekeepers' meetings, and the last word I had from him, he was spending the winter in sunny California.

Another of our successful beekeepers, Mr. H. G. Sibbald, of Toronto, was president for 1905 and 1906. Keeping about 300 colonies in a rolling district about 30 miles from Toronto, Mr. Sibbald has reported some very good yields of clover honey. His returns have been sufficient to warrant his keeping up a home both in the city and in the country, spending only the summer months at his country home where his apiaries are located. He was one of the earliest automobile enthusiasts of the association, reporting some years ago the fact that we now know to be true, that a motor car would enable one to run an extra apiary sufficient to pay running expenses of the car and give the pleasure of motoring besides.

[To be continued.]



FIG. 7.—AT ONE OF THE KROUSE YARDS AN OLD SHOW WAGON IS USED AS AN EXTRACTING HOUSE

cupied the chair, legislation for the suppression of foulbrood was passed by the Ontario legislature, and Mr. Wm. McEvoy, was appointed Provincial Inspector, under the direction of the Beekeepers' Association. While not the first discoverer, Mr. McEvoy was the first to bring promptly before the beekeeping world the method of treating foulbrood, to which his name

I visited his home last winter and was very pleasantly entertained by Mrs. Darling and her son and two daughters.

The president in 1898, was Mr. M. B. Holmes, of Athens, who is still actively engaged in beekeeping and in association work. Being a director, Mr. Holmes is always at the annual meeting, and every year an apiary demonstration is held at his home, where the

American Bee Journal



PUBLISHED MONTHLY AT
1st Nat'l Bank Bldg. Hamilton, Illinois

Entered as second-class matter at the
Hamilton, Illinois, Post-office.

C. P. Dadant, Editor
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

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THE EDITOR'S VIEWPOINT

November Thoughts

It looks more and more probable that the high price of sweets will keep the price of honey within reasonable limits even though the eastern crop is larger than usual. So, friends, do not rush your product to market at low prices, although in the case of comb honey it is well to get rid of the bulk of it before the end of the holidays. Let the consumers know about it and find new outlets around you by local advertising.

PUTTING THE BEES IN WINTER QUARTERS.

Wherever the colonies are strong, it is well to fix them in their winter quarters before very cold weather, so as not to disturb them when the weather becomes very cold. Similarly, at the first cold spell the colonies that are to be put into the cellar should be brought in. They will fare better, according to the experience of all our old heads, if if they are placed in the cellar early than if they are kept out until a severe cold spell has them confined for some time to the hive.

The temperature required in a beecellar is variously estimated at from 35 to 50 degrees, with an average of between 40 and 45 degrees. The temperature at which they remain quietest is the right one. So use a thermometer in the cellar and judge for yourself what degree is the best, by the behavior of your colonies. Your thermometer may show a higher or lower degree, as the right one, than that of your neighbor, depending on its position in the cellar room, but the quietude of the bees is an infallible sign of proper conditions.

Weak colonies winter best in the cellar in most of our northern States.

Dairying and Vegetable Growing

The dairymen of Illinois planned to have a "Dairy Day" on Oct. 7. Their

organization pushed the matter to the point that they got the cooperation of the State Bankers' Association, the railroads of the State, and the State Dairy Commissioner. Result: A big dairy "Barbecue" at Litchfield, with many thousands in attendance and prominent speakers available. Organization did it.

The Vegetable Growers' Association of America sent circular letters to all editors, announcing their meeting in Chicago in September. In connection



FIG. 8.—A ROBIN TOOK ADVANTAGE OF THE PROTECTION OF A WARNING SIGN AT THE BOWEN OUTYARD

with the meeting, a four-day course in growing under glass, control of insects, etc., was conducted. Gardening exhibits from six different colleges were shown.

Dairying and vegetable growing are certainly both more prominent than beekeeping, but the beekeepers must organize if they are to make their industry take the prominence it should.

Education in Beekeeping

A letter from Dr. A. C. Burrill, of Idaho, informs us that he has been invited to take charge of a new course in beekeeping at the University of Idaho.

At the University of Illinois only a few students were registered in the beekeeping course in 1914. Last year more than 50 applied, so that an assistant to Prof. Folsom was necessary.

As our industry grows, so the demand for information is bound to grow in proportion.

Advertising Honey

Several letters have come in to us from consumers the last few days asking where they could obtain table honey. One or two of these letters were from large firms who found present connections insufficient or wanted to make a change. In every instance we refer such inquirers to our advertising pages.

If you have honey to sell or want to buy, a small advertisement should help you out.

A Bee Disease in Liguria

Our good friend, Engineer A. Capponi, of San Remo, Italy, writes in the September number of *L'Apicoltore* of a new bee disease, which he calls "tifo" (typhus). The beekeepers around him noticed in the fall of 1915, as he did himself, that the bees were dying in large numbers. Many powerful colonies were reduced to a few hundred bees. Many had to be united. The disease continued in the spring of 1916, so that his colonies in one apiary were reduced from 45 to 15. Another apiary of 20 was reduced to one. The only three swarms harvested deserted their hives and yet the season was good for honey, the strong colonies harvesting a good crop.

The readers who have followed the account of our trip in Europe in 1913, will remember that San Remo is located in the west part of Liguria, where the bees are of a mixed race, part Italian, part common.

The Editor of *L'Apicoltore*, Mr. Vincenzo Asprea, promises to investigate the disease in question. Perhaps it is similar to the Isle of Wight disease.

A New Miller Book

For more than 20 years Dr. Miller has conducted a Question and Answer Department in this Journal. The department has grown in popularity from year to year until it is no longer possible to answer all the questions through the Bee Journal. Some months we are compelled to delay half or more of the

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answers for lack of space.

In looking over the files for the past years we find that at some time Dr. Miller has answered questions relating to almost every conceivable angle of bee-culture. Maurice G. Dadant has been at work for some time sifting all this material to find the best answer given to every kind of question, and over a thousand of these questions with Dr. Miller's answers will be published in book form. We plan to use a number of illustrations to make the text clear, and believe that such a reference work will find a welcome among the Doctor's many admirers. This department has been continued so long that most of the answers now appearing are to questions that have been answered at some time in years past and some of them several times.

We do not intend to discontinue the department, but believe that the book will cover the entire field so fully that persons possessing it will be able to find the answer to almost any question that suggests itself. The questions coming to this department are at times so numerous as to make a heavy demand upon the Doctor's time. It seems desirable to save him from going over matter that he has already covered many times before.

Australasian Beekeeping

"Money in Bees in Australasia," is the title of a very practical treatise of 293 pages, now before us. The book is by the well-known Tarlton Rayment, whom our readers will remember as a contributor to the columns of the Bee Journal in September and December, 1915.

The book is on fine paper, well gotten up, with good illustrations, the most of which are original with the author. Perusing its pages convinces the reader that Rayment is not only a practical man, but a student who has read and tried most of the methods now in vogue in profitable beekeeping. We predict for it a ready sale in the Southern Hemisphere. The price is 7s. 6d., and the publishers are Whitcombe & Tombs, of Melbourne.

Shallow Supers

In Gleanings for Oct. 1, Mrs. Grace Allen writes that full-depth supers are too heavy for comfortable handling, but that she dislikes the shallow supers, which contain "not much more than half the weight."

Our own shallow supers are considerably larger than those used by the majority of beekeepers. The frames in them contain 92 square inches of comb

as against 135 of the average full depth Langstroth frame, or a little over two-thirds of the contents of such a frame. As we use only 10 super frames over the top of an 11-frame hive, in a space of 16 inches, our super combs are also thicker than those of the full-depth frame. But there is no comparison in the ease of handling those shallow extracting supers. They are exactly of the proper width for a single stroke of the uncapping knife. That is why our uncapping is so expeditious. If Grace Allen were to try such shallow frames she could never agree to use the deep super again.

We have tried both the full-depth supers of the Langstroth pattern and our own shallow supers side by side in hundreds of colonies, and we could not think of ever going back to the full-depth supers.

DEATH OF PROF. COOK

Dr. Albert J. Cook, State Horticultural Commissioner, died at the home of his son in Owosso, Mich., after a long illness, on Sept. 29, aged 74 years.

Prof. Cook received his degree from the Michigan Agricultural College, with the entomological department of which he was connected for many years, during which time he was one of the leading apicultural inspectors and authorities of the country. His "Beekeepers' Guide," published in 1883, attained a large sale, and is still a standard text book.

In 1893 he accepted the Biological

Professorship in Pomona College, since which time he has been less directly interested in apiculture. In 1911 he entered politics and was appointed California State Commissioner of Horticulture by Gov. Johnson, which office he still retained.

Prof. Cook was regarded as one of the foremost educational instructors of his day, his trend of thought being practical as well as scientific. He possessed the faculty of imparting information in an interesting manner, and was a popular lecturer as well as instructor.

He is survived by his widow, living in Claremont, Calif., and a son and brother of Owosso.—*Western Honey Bee*.

Honeydew

The interesting article and free translation of Prof. Heberle in this number will be read with interest. As a rule, the Swiss beekeepers ascribe the dark fir honey to an exudation. But in this country there is little doubt that the honeydew gathered mainly on the hickory, the oak, the basswood, etc., is a product of plant lice or aphides, often of the winged aphides. The writer disbelieved this theory until one day he saw honeydew on the upper surface of some dried leaves which were on the end of a limb, with nothing above them. It does not follow, however, that all honeydew is caused by plant lice, as the exudations of sweet juice have been proven by Bonnier.



THE LATE PROF. A. J. COOK—THIRTY YEARS AGO

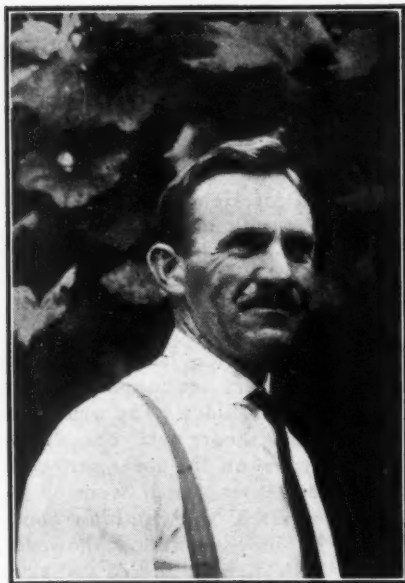
American Bee Journal

AMONG EASTERN BEEKEEPERS

The First of a Series of Articles by the Editor on His Trip Through a Portion of the East

AS announced on page 277 of our August number, I have again taken a trip among beekeepers, this time in the far east.

Dr. Burton N. Gates, of Amherst College of Agriculture, organized this tour by arranging nine field meets of



E. G. CARR IN WORKING GARB.
(See the smile.)

beekeepers at such dates as would make it convenient for me. He promised to attend the greater number of them with me, and it is to him that I am mainly indebted for the great pleasure of this visit among eastern beekeepers.

On July 31, after a railroad journey remarkable only by extremely hot weather, I reached Mt. Holly, N. J., where the smiling face of Mr. E. G. Carr greeted me on arrival. Our readers will remember that his photograph was published in the February number of the Bee Journal, page 45, among the people who are doing the work of Uncle Sam for beekeeping. But in that photograph he is exceedingly serious. You should see him smile to appreciate him. (See half-tone in this number.)

Mr. Carr is secretary of the New Jersey Beekeepers' Association and Inspector of bees for New Jersey. He is an active worker.

The first thing I did in landing at Mt. Holly was to look for the Mount. But I could see it nowhere. However, they pointed it to me, a little knoll a mile or two away, in a level plain. They say holly grows upon it. There are a dozen or more similar little humps in the southern half of New Jersey which otherwise would be as level as Illinois. But the northern portion makes up for

the southern, since it contains a number of respectable mountains and among other celebrated natural wonders "The Palisades of the Hudson." Is that why they call it "The sharp backs State"?

New Jersey is renowned for its flora, and I learn that it has a more varied honey flow than any other State in the Union. Its principal honey crop comes from crimson, alsike and white clovers, all light in color. The fall flow, mainly from golden rod, with heartsease and asters, supplies a sufficiency for wintering.

The meeting of that day was held at the apiary of Mr. Harold Hornor, near the city, a nurseryman who keeps as neat an apiary as I have ever seen. Some 60 colonies were tiered four and five stories high. Mr. Hornor winters in two stories and requeens every year as soon as the clover crop is over.

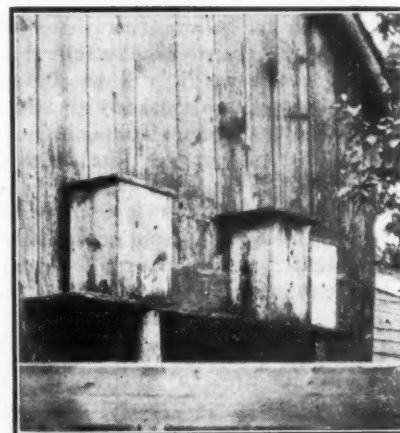
About 75 beekeepers were in attendance. The crop in general has been good and some anxiety was shown as to a possible lowering of prices. Yet, with the high price of sugar, it would be a mistake for the producers to become panic stricken.

The main subject discussed was European foulbrood. There is little if any American foulbrood, and the method recommended for the other disease is requeening with cells or young queens from pure stock, leaving the bees queenless at least five days.

Mr. R. D. Barclay, of Riverton, N. J., was the presiding officer at this meeting as well as at the meeting at Elizabeth the following day. He is a young

man and a splendid president. Much of the success of a meeting depends upon its managers, the president and the secretary. The New Jersey beekeepers can congratulate themselves upon the choice they have made, in these two men.

That same evening I rode with Mr. Carr, in his machine (a Ford), to his home, about 20 miles distant, and the next morning early again to Trenton. There we took the train for Elizabeth, where a second meeting was held the first of August, at the hospitable home of Messrs. T. Edw. and Chr. Diener.



THERE ARE SOME BOX HIVES LEFT IN
NEW JERSEY



HOME APIARY OF STATE INSPECTOR E. G. CARR, AT NEW EGYPT, N. J.

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In this small yard, located in the center of a city of 80,000 or more, we had an object lesson of the possibility of keeping bees without fear of stings. Over 75 persons were present, with many ladies and children and no one was stung, although people passed back and forth in front of the hives and a luncheon was served among them.

Dr. Headlee, State Entomologist, was present and spoke encouragingly of the prospect of beekeeping in New Jersey. There are but few large producers of honey in the State, but bees are profitable and are needed for the immense amount of domestic fruit blossoms to become fertilized. The fruit growers as well as the beekeepers realize their usefulness in this respect.

An interesting implement shown was a circular bee-escape, by C. D. Cheney, of Hoboken. This implement which allows the bees to issue forth in all directions might give a little more ventilation to the super than the standard pattern, but its cost would probably be greater.

The Diener method of watering bees deserves a mention. All beekeepers know that unless bees have an accus-

tomed spot to get their supply of water at breeding time, they are likely to annoy neighbors at wells or cisterns. The Dieners have a city water pipe faucet dripping very slowly into a trough, and the water runs thence to a pile of rocks set on a hollow stone. This is sufficient to supply their bees with water and they do not annoy the neighbors, although in the heart of a city of 80,000.

It is out of the question to mention all the nice people I met or all the questions discussed, but I must speak of Mr. H. C. White, a New York City attorney living in Plainfield, N. J., an apiarist and a member of the State Board of Conservation, who expressed his desire to help beekeeping in the State by all means in his power.

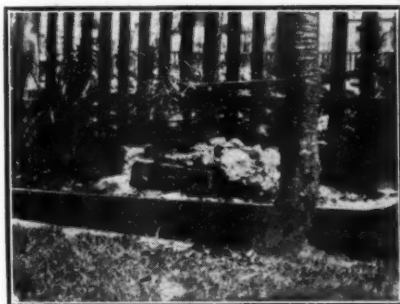
An acknowledgement is due to the Diener family for their generous entertainment of the members. They supplied a lunch for the 75 people present and looked after the comfort of all as if all were members of their family. Such hospitality is to be remembered.

Elizabeth is but 15 miles from New York City, and that same evening I was "at home" in a room on the 12th floor of a sky-scraper. Modern buildings have conveniences which would have been luxuries 50 years ago. A room with bath has become a necessity to the traveler, but it is in temperatures of 90 degrees or more that such a convenience is best appreciated. So is "ice water on tap" in the rooms, a still more modern accommodation.

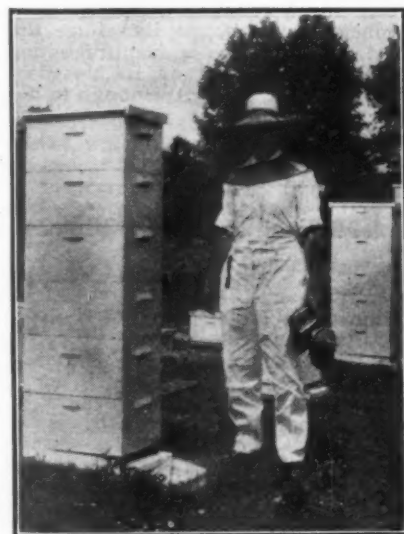
I have no love for large cities. Seen from a distance they seem to be made of tall boxes on end and little boxes lying flat by the side of the tall ones, all with numerous breathing holes arranged in rows, which they call windows. When these huge piles of brick, stone and iron become heated, life in their interior can only be likened to life in a steam laundry, with bad air added. So with your leave, I will quit New York and go on to fresher scenes.

The only visits I made in New York before leaving, the next day, were to the well-known dealers in bee goods, J. H. M. Cook and I. J. Stringham, both busy in the busiest part of the metropolis.

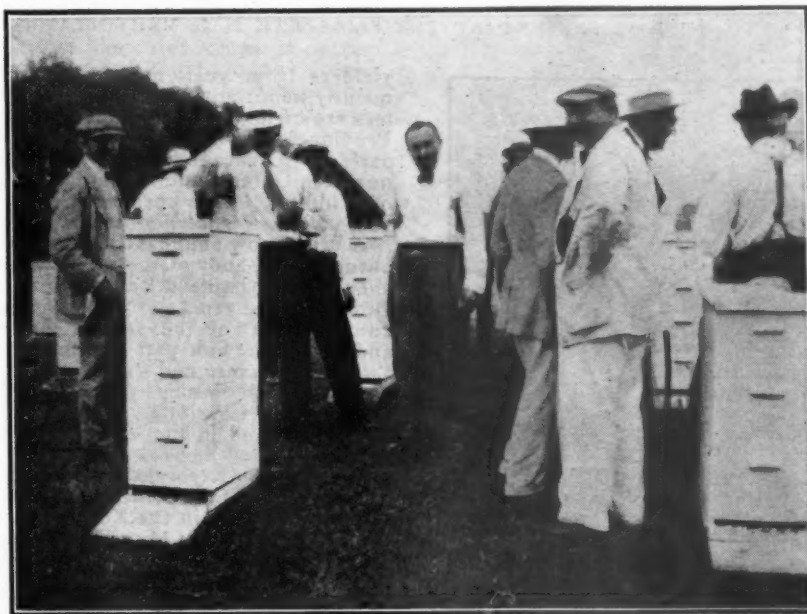
I had received a hearty invitation from friend Allan Latham, of Norwichtown, Conn., to stop with him overnight previous to attending the Connecticut beekeepers' meeting which was to be held at Storrs on Aug. 3 and 4, and to which he expected to go in his automobile. All our readers know of Latham, as one of the liveliest, widest awake beekeepers in the United States. If you have forgotten what he is capable of sustaining in the way of forceful suggestions, look up his article on "Comb Honey by Parcel Post," in the March, 1914, number, or his testimonial to the usefulness of the yellow-jacket



TROUGH SHOWING METHOD OF WATERING BEES AT THE DIENER APIARY
It keeps bees from neighbors water pumps



HAROLD HORNOR OF MT. HOLLY, N. J.
BESIDE A "SKYSCRAPER."



AT THE HORNOR APIARY, MT. HOLLY, N. J.
The colonies were tiered three or four stories high

in the April, 1910, number of the American Bee Journal.

Norwichtown is a suburb of Norwich, less than 15 miles from the Long Island Sound at New London. My way was by the sea shore, through Stamford, and I regretted to pass by without calling upon our old friend, L. C. Root, son-in-law of the veteran Moses Quinby and author of "Quinby's New Beekeeping." But I was later to have the opportunity, as will be shown.

I had wired Latham the hour of my arrival and he was at the train, with his two young sons. He did not have any auto, only a Ford, but with that faithful and hard-working little toy we were soon at his home. The first thing he did was to take me to the apiary, of course, but we were intercepted by Mrs. Latham, who came out of a side door and smilingly introduced herself to me, remarking at the same time that Mr. L. cared more for his bees than for his wife. Latham did not protest, how could he? The evidence was against him.

Mr. Latham is a lover of Nature and a student. He is almost as much of a crank on the study of bugs and plants as our co-worker Pellett, although I doubt whether he has ever gone as far

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as rearing skunks and chicken-hawks for pets, as Pellett has done. We had a whole half day together the next morning and we went to one of his outyards, with his two boys. We roamed through the brush and for the first time in my life I went blueberry hunting. If Connecticut cannot boast of endless level fields like those of Illinois, it surely has a more delightful climate, for there is no such oppressive heat as in our plains and the wooded hillsides, pastures and stone fences reminded me forcibly of the scenes of my childhood in sunny France.

Here I first tasted pure sumac honey, for half a dozen varieties thrive in New England, and I saw more in the vicinity of Norwichtown than anywhere else. The honey is excellent and of a very pretty, pale, lemon color. I have nowhere seen honey of a similar shade. Sweet pepperbush (*Clethra alnifolia*), a pretty shrub growing naturally in a number of States, mainly along the coast, appears to be a plentiful honey producer, as bees are on its blossoms constantly. It is pretty enough to deserve a place in our yards, with the spireas, barberry, etc.

[To be continued.]

Honey Sources of Canada

F. W. L. SLADEN, DOMINION APIARIST.

ALSIKE and white clover are the principal honey plants of Canada, the clover honey region extending from coast to coast, but they fail more or less in the heart of the prairie country and in the dry belt of British Columbia. In many places alsike is as important as, if not more important than, white clover. This is especially true of the Great Lake region of Ontario, alsike being the principal source of honey in southern Ontario, where it is also cultivated for seed. In many parts of the Maritime Provinces white clover and alsike are usually abundant and very productive, but repeated freezing and thawing in winter and early spring kills the plants some years. As a

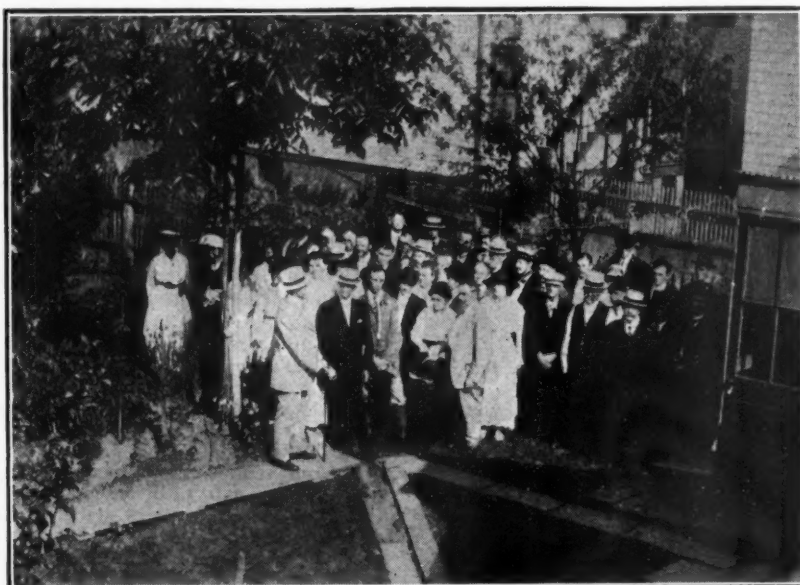
source of surplus honey, these clovers are mainly confined to the farming sections, and they are extending every year as the land is cleared.

The principal commercial honey plant of the timber lands is fireweed (*Epilobium angustifolium*), which grows in abundance in moist and rich clearings, especially those that have been burned over. The fireweed becomes more common as one goes northward. Like clover, fireweed extends from coast to coast. It has a longer yielding period than clover, comes a little later and is not so badly affected by drouth, three important advantages, while the quality of the honey is very good, the color being even whiter than clover and the flavor mild. In many places raspberry is associated with the fireweed.

The alfalfa honey region extends into Canada in southern Alberta. It has

not been much exploited yet. An average of about 130 pounds of honey per colony, spring count, mainly from alfalfa, has been obtained at the Dominion Experimental Farm, Lethbridge, during 1914-15. The region of paying crops of alfalfa honey probably extends westwards into the British Columbia dry belt.

The timber and scrub lands of the prairie possess a number of wild honey plants that are of commercial value collectively. The most important of these are the wolfberry (*Symphoricarpos occidentalis*), Canadian sainfoin (*Hedysarum boreale*), and the anise hyssop (*Agastache fenniculum*). Among the honey plants with a restricted range of production there is buckwheat in southern Ontario and southwestern Quebec, and also basswood with a similar but wider range extending into southeastern Manitoba. Both are uncertain



A FEW OF THOSE PRESENT AT THE ELIZABETH, N. J., MEETING, AUG. 1.



MT. HOLLY, N. J., MEETING JULY 31, 1916
The tall white pillars are colonies of bees

yielders from year to year, but frequently important. Goldenrods and asters are of importance in the Maritime Provinces, of less value in the settled parts of Quebec, and improve again in northern Ontario and in Manitoba, east of Winnipeg. Two species of goldenrod, *Solidago puberula* and *S. squarrosa*, that grow abundantly on recently burned-over sandy plains in the watershed of the Gatineau Valley north of Ottawa have given good yields of light-colored honey at the end of August and during the first part of September. *Solidago uliginosa* and *Aster umbellatus* are important honey plants in the swamps in Charlotte county, New Brunswick, and in the Molson district of Manitoba.

The dogbane, *Apocynum androsaemifolium*, is one of the principal commercial honey plants in the Kootenays, B. C. Wild bergamot, *Monarda fistulosa*, and the gum weed, *Grindelia squarrosa*, have been reported as sources of honey in Manitoba. Among the introduced weeds, the wild radish, *Raphanus raphanistrum*, is evidently a source of a good deal of honey in the Annapolis

American Bee Journal

Valley, N. S. Canada thistle is a surplus producer in Manitoba and in the dry belt of northern Ontario and elsewhere, but it is probably unimportant.

Willows supply pollen and nectar in April. Dandelion is abundant in many places and, if the weather is favorable, yields a surplus to strong colonies. At Ottawa the three strongest colonies in our apiary in the spring of 1914 had filled a super of shallow frames with dandelion honey by June 2. Apple bloom also yields surplus at this time if the weather is favorable in the Annapolis Valley, N. S., and other fruit growing districts. The two species of low blueberry in the east, *Vaccinium pennsylvanicum* and *V. canadense*, and the bearberry, *Arctostaphylos uva-ursi*, noticed at the Experimental Farm at Invermore, B. C., on May 17, 1915, are also of value in spring. A bungwort, *Mertensia paniculata*, is useful for building up in the spring, north and west of Lake Superior.

None of the eastern species of maple appear to be of first-rate importance, but *Acer macrophyllum*, known as the broad-leaved or coast maple, is a valuable aid to breeding on the coast of British Columbia. On May 8, 1915, 200 pounds of honey, principally from this maple, were removed from 11 colonies at the Dominion Experimental Station, Agassiz, B. C.

Sweet clover, usually the white flowered species, *Melilotus alba*, is becoming plentiful in certain places in Quebec, Ontario, and the prairie and along the railways, but it does not, as a rule, yield heavily. The honey overpowers the delicate flavor of the clover honey, and bees that have been prepared for winter will wear themselves working on the flowers in August and September without adequate return.

Of ornamental trees and shrubs, two deserve notice. European limes, *Tilia europea*, planted for shade in the city of Charlottetown, P. E. I., were contributing to the filling of supers at our Experimental Farm there on Aug. 3, 1914, a month later than they would be in bloom in England, and the Siberian pea tree, *Caragana arborescens*, was found to be the chief source of nectar that was gathered rapidly at the Experimental Farm at Indian Head, Sask., on May 31, 1915, where hedges which are now about 20 feet high had been planted around several fields some years ago.

The following is a list of some of the less important honey plants: Snow-

erry (*Symphoricarpos racemosus*) west of the Kootenays, B. C.; milkweed (*Asclepias*); boneset (*Eupatorium perfoliatum*), New Brunswick to Ontario; viper's bugloss (*Echium vulgare*), Ontario; buckthorn, sumac, Ontario; button-bush, S. Ontario; blackberry, smartweed, catnip, motherwort, hound's tongue (*Cynoglossum*), Ontario; blue vervain.

Canada with its long and warm summer days and well-distributed rainfall, and abundant bloom throughout the season, beginning in April when, it may be in heat and brilliant sunshine, the snow rapidly melts away and the willows burst into bloom, and continuing until in early September, the east and north are aglow with goldenrod and aster, is a fine country for the beekeeper. Over a large area the season is as long or longer than in many places to the southward, July being the month for clover yield and August for the fireweed.

American Foulbrood

BY J. L. BYER.

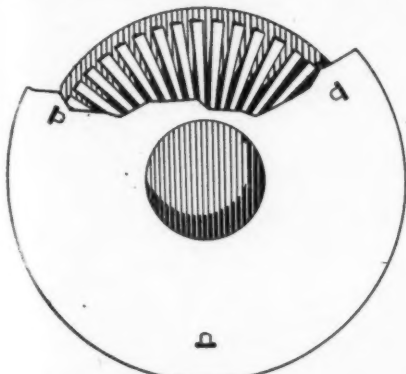
WHILE there is considerable difference in opinion as to the best methods of treating European foulbrood, nearly all are quite decided

that the so-called McEvoy method, or a modification of the same, is the only way of dealing with American foulbrood. In this connection it is only fair, in behalf of the late Mr. McEvoy, to state that he *always* insisted that two shakes instead of one be given. The latter method is more often advised in the United States than the former. I have at different times asked Mr. McEvoy if he did not think it as well to give but the one shake and run the risk of a small percentage being found diseased again, but he always emphatically answered "no," as in his experience the percentage that would show up with disease again was too large. This being the case, any one attempting to cure foulbrood, by simply taking away the brood-combs and shaking the bees on to foundation, should not by any means call it the McEvoy plan, for if Mr. McEvoy were alive he would be the first to resent it.

The inspectors in Ontario have no license to use the single shaking plan, and I have heard of none advising that method. Even if the experienced beekeeper did practice the plan with success, watching carefully for disease to reappear in treated colonies, the fact that inspectors deal with all kinds of people, many of whom would "take a whole hand if you offered them a



SWEET PEPPERBUSH (*Clethra alnifolia*) GROWING IN ALLAN LATHAM'S YARD



A WELL VENTILATED BEE-ESCAPE
C. D. Cheney



FIG. 91.—HOUND'S TONGUE—Photographed in the woods

thumb," makes it imperative in the minds of our authorities that no half way measures should be tolerated in dealing with such a serious disease. If giving but one shake would cure all but a few, one could afford to treat those few colonies again, for a second shaking often seems to demoralize colonies, causing many to desert the hives if queens are not caged. Those who have practiced much shaking of foulbrood know of the amount of trouble often attendant with the second shaking when the partly drawn starters are replaced by full sheets of foundation.

While we have never had much foulbrood in our apiaries—six colonies at one yard five or six years ago being the largest number found in a single season—yet as I practiced the single shake in nearly every case, results as to how they turned out might be interesting. During the last eight years I have treated 17 or 18 colonies, nearly all mildly affected, as I always found them in the spring when clipping queens and doing the general manipulating incidental to spring work. Of this number five or six showed a few cells of foulbrood later, and had to be shaken again. This is altogether too large a percentage, and if this is a general condition resulting from giving but one shake, I understand why Mr. McEvoy emphatically insisted on two shakes, and I wonder that so many inspectors "over the line" advocate giving but one shake.

Results are often hard to explain, and I might illustrate this by telling of two incidents coming under my notice. Some years ago when on inspection work I was looking through some very strong colonies belonging to a friend not far from my home, a distance of seven or eight miles. The colonies were given little attention by the owner, but the bees, although in odd-sized hives, were abnormally strong.

On examination, six of those very

strong colonies were found mildly diseased with American foulbrood; evidently they had been robbing somewhere quite recently, as no dried scales were to be seen. My friend said he would not treat the bees, and that if I

would not take them away he would burn them, hives and all. I tried to persuade him to treat them, but to no effect, and later he sent word for me to come and take them away or he would burn up the whole outfit. Reluctantly I decided to drive over and bring the six colonies home and treat them, as it seemed too bad to destroy such strong colonies.

Of course, as an inspector I could not think of buying the bees, and it was hardly the thing for me to take them away even if my friend was so insistent. However, laying aside the ethics of the case, the six colonies were brought home and placed about 100 feet away from the other bees, under some apple trees. They were given but one shake, yet not a cell of foulbrood ever reappeared, although a careful watch was kept on those hives ever since. There had been a very heavy flow during the day on which the bees were treated and for a few days following. Last spring we found two cases of foulbrood, one at the Altona yard and one at the home yard. Both were given the single shake at the opening of the clover flow. After the shaking we had three days of rain that kept the bees in the hives. I thought surely there would be a cure, for the bees were getting nothing and would have to use up the honey taken with them that might possibly be diseased.

Later in the season I found both colonies showing a few cells of foulbrood. I can offer no explanation, and



FIG. 92.—PROF. PETTIT AMONG THE WILD RASPBERRY IN ONTARIO

can only say that each year I am getting to be more of the opinion that it would pay us to always give the two shakes.

Markham, Ont.

No. 22.—The Honey-Producing Plants

BY FRANK C. PELLETT.

(Photographs by the author.)

ALL three of the pictures illustrating this article were taken by the writer during his recent visit to Ontario. Figure 91, the first one shown is the common hound's tongue, *Cynoglossum officinale*, a weed introduced from Europe. It is named from the shape and texture of the leaf. The writer had not previously met with this plant, although it is recorded as of rather infrequent occurrence in some parts of Iowa. It was referred to as a good honey plant on several occasions during the stay in the province, but no definite information as to the extent of its value or the quality of the honey yielded could be obtained. The specimen shown in the picture was growing

in the woods near Guelph. It was also found growing in open fields. Memoir 54 of the Canadian Geographical Survey gives its habitat as "open ground near dwellings, cultivated fields and open woods." The plant seems to be more abundant in the north from New England to Quebec and Ontario, although it is sometimes found as far south as Alabama and Georgia and is recorded as far west as Kansas. It is said to be common throughout the State of Maryland in "dry forests and waste situations." The writer will welcome correspondence from beekeepers who can give information in regard to the quality of honey stored from this source or whether it ever secretes nectar in sufficient abundance to be of special value.

WILD RASPBERRY.

The wild black raspberry, *Rubus occidentalis*, is a very common plant in the woods of the northeastern States. Mohr gives its natural range as New England to Quebec and Ontario, Minnesota, Nebraska, Colorado and Oregon, south to Ohio and West Virginia, and along the mountains of Georgia.

There are several species of wild

raspberries, but probably all are good honey producers. Raspberry honey is produced extensively in northern Michigan where the plant is abundant on cut over lands. It blooms following the tree fruits and is usually ahead of the white clover. In localities where it is plentiful it is a most valuable honey plant and phenomenal yields have sometimes been reported from this source. A good raspberry location is very desirable. Beekeepers who chance to be near large plantations of raspberries cultivated for market are equally fortunate. The honey is said to be white and of a superior quality. Figure 92 shows a luxuriant growth of wild raspberry as it is found in many localities in Ontario.

HAWTHORN.

Figure 93 pictures a hawthorn tree in full bloom. The picture does not do justice to the masses of white flowers with which the tree was covered. This is an eastern species, *Crataegus punctata*, which occurs from Quebec to Ontario and south to Georgia. It was about the middle of June when this picture was taken and the bees were working on these trees everywhere we went. Clover had not begun to yield to any extent and the thorn was a great boost to the bees wherever it was plentiful.

There are many different species of hawthorn, or haw, some of which occur in Europe and Asia as well as in North America. On this continent some species are common from Canada to Mexico and west to the treeless plains. Scholl reports the white thorn, *Crataegus spathulata*, as valuable for both honey and pollen in Texas, where it blooms in April. There are about 25 species of these trees within the United States, and all may be regarded as valuable sources of honey where they are sufficiently plentiful. In general they may be regarded as similar to the tree fruits in quality and quantity of nectar. Five species are known to occur in Ontario.

Atlantic, Iowa.

Copyright: 1916, by Frank C. Pellett.

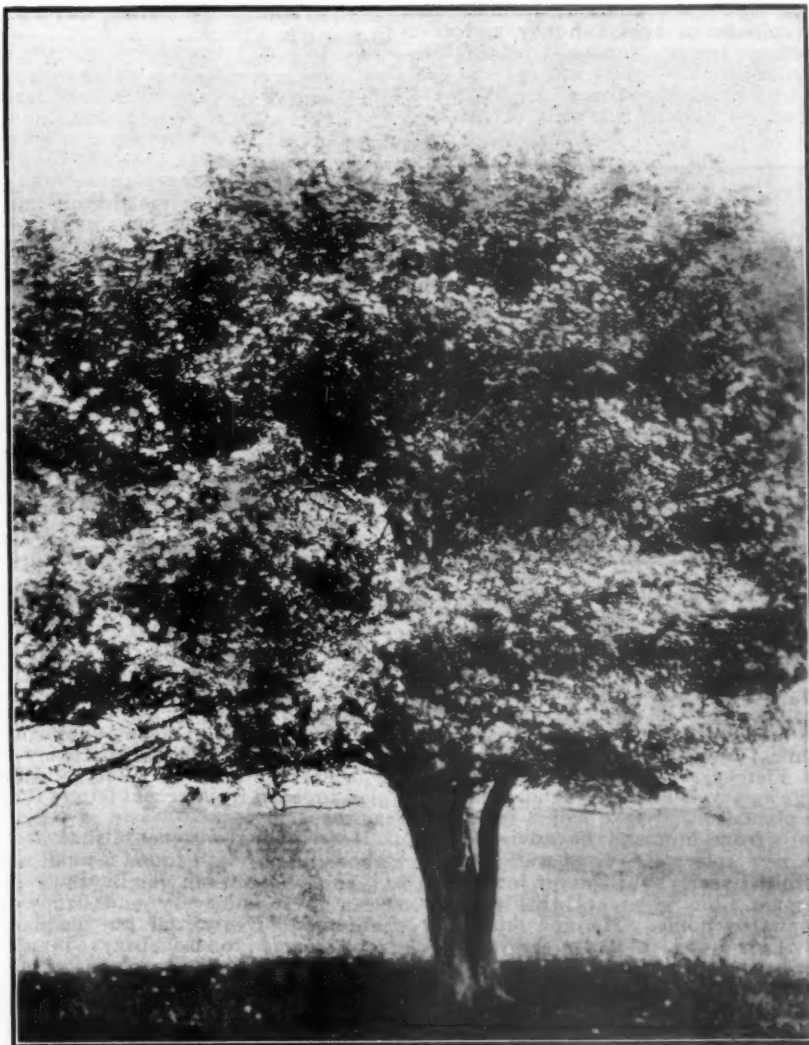


FIG. 93.—A HAWTHORN TREE IN BLOOM

Beekeeping in Ontario

BY GEORGE F. KINGSMILL.

ELSEWHERE in this number appears an article dealing with some of Ontario's most prominent beekeepers. Space permits mentioning the names of but few, yet there are many beekeepers in Ontario having honey production as their chief means of support. Hundreds of others keep bees as a sideline, and many others have their colonies for their hobbies. It is concerning the hundreds of farmer beekeepers, with honey as a sideline, that I want to write especially.

Their apiaries are dotted all over the province, from the most southern part of Essex to the waters of James Bay some hundreds of miles north, and from the eastern counties Glengarry and Stormont to the western boundary, a few hundred miles west.

Practically all parts of the province have suitable acreages for bee-pasturage, some of which are, of course, much better than others. Especially

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does the new clay belt in the north seem like a beekeepers' paradise. One of the former inspectors for foulbrood, Mr. Wm. Agar, has located there, and while he has only had bees in this new territory for the past two seasons, his crops are startling to the beekeepers of the more settled districts. The effects of the timber fires and slashing have yet to be seen, but present indications are that this will be a grand bee county when developed.

Like every other part of the globe, the beekeepers are from all walks in life — doctors, lawyers, merchants, preachers, teachers, farmers, bankers, printers, etc. Some are more extensively interested than others, but all are finding it a pleasant and profitable undertaking. The greater numbers of the beekeepers are farmers having bees as a sideline. While some are looking to this sideline as a means of employment for members of their growing families, others regard the bees as a hit or miss proposition that sometimes pays and at other times only holds its own.

Centers for beekeeping have sprung up in different parts of the province. The former so-called apicultural schools, conducted by prominent extensive beekeepers, gave men a practical insight into the business, and no doubt tended to increase the beekeepers in their neighborhoods. Others saw that bees could be kept profitably and entered the business, and in this way beekeeping grew in centers. In many cases the growth overcrowded the district, and the overstocking resulted in smaller averages both to the extensive, as well as the small beekeepers. The smaller men in some cases became discouraged and soon dropped beekeeping, while in other cases the congestion was relieved by the larger beekeeper moving to new territory. Such centers were established around Woodstock, London, Trenton, and in the extremely eastern parts of the province.

The Provincial Department of Agriculture annually compiles a spring report of beekeeping conditions. The report of 1916, taken from 800 replies, showed 30 colonies per apiary to be the average. The 800 beekeepers reported have 574 extractors of which no less than 21 were power machines, 201 2-frame and 178 were 4-frame extractors. Undoubtedly some of those reporting produce comb honey exclusively, and hence have no extractor. If a census were taken of the extractors in use at present, a far greater number would likely be shown, as many beekeepers have purchased this past summer to handle the heavy crop.

The use of the motor car in apiary work is steadily increasing, and especially with the specialist beekeepers it is being successfully employed. Large trucks are sometimes used, but generally the lighter cars are preferred. In some cases the rear seat is replaced by a rack for the load, while in others a trailer is attached and the car is used only for its locomotion. Sixteen cars were in use last spring—many more will be used next season.

A crop report taken by the Ontario Beekeepers' Association gave the average yield of light honey per colony to be 89.6 pounds. This, of course, has been a very good season, yet the aver-

age is only about 30 pounds higher than last year's average. It is estimated that there are at least 10,000 beekeepers in Ontario keeping an average of 30 colonies each, or a grand total of 300,000 colonies. With this year's average of 89.6 pounds per colony, 25,880,000 pounds or 12,940 tons were gathered by the bees. It would take between 8 and 9 trains of between 50 and 60 cars each to carry this crop to market if it were all marketed. Large quantities are used for home consumption, and only occasionally is any one market overloaded.

Guelph, Ont.

Porto Rico and Its Beekeepers

BY HENRY BRENNER.

I ARRIVED in San Juan, Porto Rico, in February, and had the good fortune, in a few days after landing, to form the acquaintance of Mr. Elton Warner. Mr. Warner is, to my knowledge, the largest beekeeper on the island. He is a progressive and up-to-date apiarist as his well kept apiaries bear witness. They are all in first-class condition and fitted out with every modern convenience and improvement. They are situated on good automobile roads and each contains from 200 to 500 colonies of bees, a honey and extracting house and a comfortable dwelling for the apiary manager.

Through the kindness of Mr. Warner I became acquainted with Mr. M. K.



MEANS OF TRANSPORTING SUGAR CANE ON THE ISLAND OF PORTO RICO

Fletcher, of La Isabella Grove, one of the largest citrus fruit plantations in Porto Rico. The bees at La Isabella are managed by Mr. Warner's men. While I was there, however, Mr. Walter Fletcher, Jr., established another large apiary of his own upon a part of the plantation. I have had a letter recently from him and he advises that this new apiary has done well even in its initial year. I shall never forget the pleasant time spent at Mr. Fletcher's hospitable home. He and his good lady have a way to make a guest feel that he is really welcome.

La Isabella has its own electric plant for lights, power, etc. It has a well equipped machine and blacksmith shop, warehouses, packing sheds, messrooms and kitchens for the employees, a com-

missary store, and even a rail track through the entire plantation for the hauling of the fruit. I was surprised at the large number of employees and the friendly spirit prevailing between the management and the laborers.

During the great strike on the north coast in the sugar and citrus fields, all the hands on the Fletcher plantations stayed with him. There was no trouble, no cessation of work at La Isabella.

On the north coast I have also to thank Mr. F. E. Hartwell and the German Consul, Mr. Hepp, who contributed to make my stay pleasant. I visited apiaries in about ten different places and twice had the pleasure of taking a 15-mile horseback trip. Once I had the unique experience of a 12-mile "hike" on foot along the beautiful country roads into some of the less frequented places. At Naranjito I met Mr. J. M. McCall, the owner of a large and prosperous cigar manufactory with a branch distributing house in New York. He is deeply interested in apiculture and I received a kind letter from him since my return home, urging me to make his home my headquarters when I visit the island again.

Along the coast runs the Porto Rico railroad, and there are also two regular automobile lines across the island from north to south. This latter way I used in going to Ponce.

At Ponce I met Senor Rudolfo del Valle, an enthusiastic beekeeper and an old friend of the American Bee Journal and of its editor. When Don Rudolfo learned that I was stopping at a hotel in Ponce he came at once and took me to his town residence where his lady and family joined in making me feel at home. That evening we went to his country home outside of Ponce. I was surprised to find in Porto Rico, which some of us have pictured as a far off island possession, a dwelling with all the modern comforts. Here was a complete system of water works, an electric light plant and such a garden as only the tropics can produce.

Through Don Rudolfo's kindness I met Senor Don Rafael Serra at the coffee plantation, Bureness-in-the-Hills, which became my home while on the south coast. Senor Serra is one of the most learned and versatile men it has ever been my pleasure to meet. He can talk as interestingly of the life of ancient Egypt, 1000 years B. C., as if he had personally enjoyed its splendor. He is as conversant with the activities of mediæval Greece and Rome as he is with modern history and literature. My dearest memories of the island are the long evenings we spent in discussing astronomy and ancient philosophy while at his hacienda. During my stay Don Rafael started an apiary, and I am glad to learn from recent letters that it is prospering.

Here again I was astonished at the labor conditions. I found a small army of employees, each family in a nice clean house and every one happy and contented. Every soul on the plantation seemed to be always in good humor. At this hacienda everything is Spanish. There are no American employees. There is a patriarchal condition between Senor Serra and every soul on the place. If a laborer or any member of his family gets hurt or sick

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he finds medicine and help. They apply at once to Don Rafael in case of any need or whenever in any difficulty. The majordomo and the overseers I found to be very intelligent men. They were born and educated on the hacienda.

The Porto Rican honey that I have seen is rather dark in color but of fine flavor. The war conditions have kept this honey from its regular market and it is now being sent to New York where the price is very low. Some of the larger apiarists claim that they are finding it more profitable to raise wax until times and markets become normal again.

Among the citrus fruit plantations nectar comes in from this source and from the trees and shrubs which are planted for windbreaks to protect the orchards from the hurricanes. At the coffee plantations the main source of nectar is from the shade trees planted to protect the coffee plants. Tobacco also yields a heavy flow under certain conditions. These are the main sources pointed out to me, but I also saw dozens of other shrubs and plants upon which the bees were working.

The intelligence of the native apiary managers is remarkable. They are anxious to learn and adopt new meth-

place, or I would tell the readers something more of the wonders of the tropics, the waterfalls, the mountain scenery, grottoes, subterranean passages of volcanic origin passing through beneath the mountains; of the hotels and the life in the towns. I found the most interesting things and the genuinely typical conditions far away from the regular tourist route. When the apiary hands found that I was interested in the natural phenomena in the flora and the fauna of the island, they were willing to show me new sights and wonders in exchange for the little help and hints I gave them in improving their methods of apiculture.

Seguin, Tex.

Honeydew—Its Origin

BY J. A. HEBERLE, B. S.

A free condensed translation of a lecture of Jule Frei, Schw. Bztg.

O PINIONS as to the origin of honeydew differ even today. It was a long time before men of science began to investigate the question. Pliny mentions honeydew and was of the opinion that it dropped as gentle dew from heaven. For centuries

aphides and honeydew occurred together on the same plants. In Switzerland about 40 percent of the honey crop is from honeydew, principally from the weisstanne (*Pinus abies*) a fir tree. From this fir tree the beekeepers in the Vosges mountains, the black forest and in parts of Switzerland, harvest large crops of honeydew, also called waldhonig. Notwithstanding its greenish-black color it is much esteemed by the population.

[From all I have heard and read (personally I have had no opportunity to make observations) about this waldhonig, the evidence points to plant origin, especially since the meteorological conditions seem of paramount importance, while the aphides surely are not quite so sensitive as to flourish only under special climatic conditions.—H.]

Mr. Frei considers all honeys which are collected by the bees outside of blossoms and flowers, on various parts of the plants, as honeydew honey. He frankly admits that there are two kinds, one of purely vegetable and one of animal origin. In Switzerland, the lecturer said, they have almost exclusively honeydew of vegetable origin, produced by peculiar climatic conditions.

Toward the end of the last century and only the last few years has the question of the origin of honeydew been settled in favor of those who consider it of vegetable origin.

The following observations have had a determining influence in deciding the question:

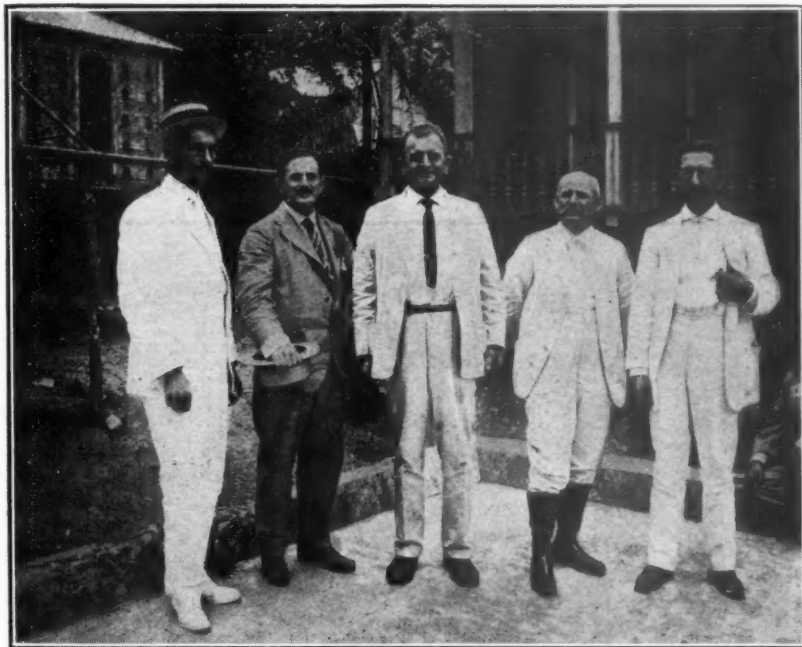
We know from observation that honeydew comes very irregularly and then suddenly, over night and sometimes in such profusion that it can for that reason not exclusively be produced by aphides. These could not in so short a time multiply to such enormous numbers necessary for such a result. Then, again, honeydew usually disappears as promptly as it came, when the weather suddenly changes.

The appearance of honeydew depends principally on the weather which may cause a rapid movement of plant juice toward the leaves; light and heat and reduced evaporation may cause such a tension that considerable quantities of the sweet juice exude.

It is a fact that where honeydew is, aphides are often present, but this presence is not the cause of the honeyflow, but is an accompanying circumstance. If the great tension of the sweet juice has set in, the excess must exude, no matter whether aphides are present or not.

In fact, several scientists have pointed out that especially by the fir, beech and alder they have, notwithstanding a careful search, been unable to find aphides in numbers sufficient to account for the liberal quantity of honeydew. The aphides could not disappear by moving when the honeydew was still present. Where a considerable number of aphides are found their presence is easily explained by their preference for juicy, succulent young growth.

Honeydew, *i. e.*, the sweet plant juice, shows in its composition a surprising resemblance to the nectar of blossoms. Mr. Frei said the main opposition to the acceptance of honeydew as of vegetable origin is from Buesgen, Botan-



A PORTO RICO GROUP

Left to right—1. Sr. Domingo Serra, 2. Sr. Rodolfo Del Valle, 3. Henry Brenner of Texas
4. The Mayor of Porto Rico, 5. Sr. Rafael Serra. The Serras and Del Valle are the most extensive beekeepers on the South Coast

ods. It was a pleasure to me to instruct these bright, eager men in queen-rearing, introducing, swarm control, wax production, etc., as we practice them in Texas.

Very important business called me home in June and I did not have the pleasure of meeting several other beekeepers who had invited me by letter to spend a portion of my time with them, and I shall certainly look them up when I return next winter.

It would take too much space, and a bee journal is perhaps not a proper

this was the general belief. The English and German name seems in accordance with this belief. About the middle of the 16th century it was noticed that honeydew is very unequally distributed in the same locality. Some plants and trees are completely covered, while trees near by show no trace of it, while if it fell from heaven all the plants and their immediate surroundings would be covered with honeydew.

In the year 1742 the Swedish Academy offered a prize for the solution because Reaumur had noticed that

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st, at the University of Jena. He considers, with the exception of ergot, honey-dew of animal origin, of aphides and scales.

During a period of drouth the product of the aphides on the upper side of the leaves dries up. Since this sweet stuff is readily soluble, dew and moisture from the air cause it to swell, so often in the early morn after a cool night we have honeydew. This may even happen after the aphides have disappeared. The absence of aphides at the time of the appearance of honeydew would therefore be no proof of its vegetable origin.

After having given the above as Buesgen's view, Frei says: Should honeydew be of animal origin as above indicated, then after a heavy rain the bees could find no honeydew, it would all have been washed away until a further accumulation had taken place. Experience shows that this is not always the case. The bees gathered from the firs in 1911, on the southern part of the Jura between Biel and Brugg, unusual quantities of honeydew honey notwithstanding the numerous heavy rains. Further, the fir harbors very few animal parasites, and the aphides and scales practically disappear about the middle of August (in Switzerland). From where can be the honeydew honey that is gathered sometimes in September, if it is not produced by the plant itself?

Buesgen says: "The minute drops of honeydew are never seen to grow, which would be observed if the plant itself produced it." Frei cites the Pfälzer Bztg., which writes in reference to the above remark: "To observe the growing of the honeydew, *f. i.*, on the fir one must be on the watch before sunrise, then one may in the twilight see in the axis of the young shoots very minute shining drops of a sweet but slightly resinous taste. As the sun rises higher these minute drops will swell and finally begin to flow."

Mr. Forer (Schw. Bztz., 1893) observed on the needles of the firs aphides of one millimeter in length with the heads toward the base of the needles.

Dr. Brandes confirms this and holds honeydew on the firs as the practically undigested juice of fir needles which the aphides have imbibed and which they flip from the end of the abdomen some little distance in little crystalline balls of about one millimeter diameter.

This, Frei says, has been repeatedly observed. He himself has observed this a few days in 1914, only a few yards from his apiary, but his bees brought no honey.

Dr. Soraner, University of Berlin, says in his work: Plant Diseases, 1909. "My own observations confirm the existence of honeydew without the intervention of aphides."

Burkhard Wuert, Bienenpflege says: "We can in some years see the shining spots from the aphides on leaves and plants without getting a drop of honey."

Dr. Heinis-Basel told Mr. Frei that he had repeatedly seen honeydew on hot-house plants which were free from aphides.

The French naturalist Bonnier has succeeded in producing honeydew on leaves and plants by artificially changing the temperature and could under the microscope see the exudation of

the sweet juice on the underside of the leaf.

Baron von Berlepsch says in his classic work, *Die Biene und ihre Zucht*: "It would be difficult to understand why or how some people doubt that honeydew may occur without the intervention of aphides, did we not know the power of preconceived opinion and that many people lack the power of observation when honeydew occurs. One need only observe the upper side of leaves that are turned up to the free air (heaven), and notice that this side is also covered with honeydew."

Unger has shown before the Academy of Vienna, that honeydew may occur independent of aphides.

The honeydew of the fir furnishes some years very good crops. One beekeeper published the best day's increase of a hive on scales:

June 29, 1893,	9.4 kilogramm.
June 29, 1894,	5.5 "
July 3, 1897,	4.5 "
July 10, 1911,	4.2 "
July 1, 1914,	4.5 "

I have seen a record of one colony producing 385 pounds in 1900. In 1915 a friend of mine had an average of 90 pounds of *waldhonig*; the best colony produced 180 pounds.

This is not all the evidence in favor of honeydew being of vegetable origin. It seems that the fir tree is almost exclusively considered. Opinions still differ as to the origin of honeydew, but there is no doubt that the honey from it, as winter stores in our climate, produces diarrhea with records of great losses, up to 50 percent and even more when not removed and sugar fed to replace it.

Kempten, Bavaria, Germany.

Work of Provincial Apiarist

IN none of our States, except Massachusetts, are all departments of the beekeeping work under the direction of one head, as in the Canadian Province of Ontario. Minnesota makes equal provision for the work, but it is divided between two departments, one having the educational work in charge while the inspection work is entirely separate. In Ontario the beekeeping work is better provided for and more fully organized than in any other Canadian province.

Prof. Morley Pettit, the provincial apiarist, is a practical beekeeper of many years experience, so that his teaching is made practical, as a matter of course. The writer has had the privilege of visiting the college on two occasions, once during a winter short course and again during the summer session. Aside from the teaching work carried on in the school and which directly affects every student registered in the agricultural courses, extension work in beekeeping is done on a scale not attempted elsewhere as far as the writer is able to learn. The department mailing list includes the names of more than 7000 beekeepers in the province, and each of them receives a circular letter of timely interest several times during the year.

The beekeepers are informed as to the crops harvested and probable prices which may be obtained, the time and place of holding beekeepers' meetings, the winter losses and many other matters of vital interest to the practical beekeeper. Extensive correspondence is carried on answering the many ques-



THE STAFF AT ONTARIO AGRICULTURAL COLLEGE AT GUELPH
Top row—Joseph Roberts, Geo. F. Kingsmill, Stanley A. Stewart. Lower row—Miss C. Koch, Prof. Morley Pettit, and Miss Grace Hamilton

American Bee Journal

tions asked by those who have met with perplexing situations which they are unable to handle successfully or the solving of the beginners' problems. Bulletins and reports which deal with beekeeping especially under Ontario conditions are sent out from time to time. The reader of general literature must make due allowances for differences in location, climate, flora, etc. The greatest value of the local bulletins lies in the fact that they apply to the exact conditions of the people among whom they are distributed. This extension work on the part of the college is largely responsible for the fact that the Ontario Beekeepers' Association has the largest membership of any like organization on the American continent, and that the beekeepers average high in their production.

REGULAR COURSES.

The work given to students in Ontario is unlike that of most colleges in that all students must take the beekeeping work during their first years, regardless of which course they are taking. During the last part of the course the student is permitted to follow his specialty to the exclusion of other lines. Under this plan the graduate will have a much broader agricultural education than would be possible if he were permitted to confine his attention to the narrow field of a specialty from the first. Although but few of these general students will take up beekeeping seriously after leaving school, they will have a much better idea of the business, and beekeepers will receive more favorable attention in localities where men with such training reside.

Beside the regular four year college courses, there are short courses given both summer and winter which are designed to give the student a good general idea of the fundamentals of beekeeping. Beginners who attend these courses are able to read the general literature with much better under-

standing and make fewer blunders in their operations.

In addition to these courses held at the college, local short courses are sometimes given where the interest justifies. The local short course takes the work to the student's home and is in line with the extension work in general farming now generally provided for in most of the States.

At the college apiary various experiments are carried on. Such practical matters as wintering, swarm control, etc., are under investigation. Various cooperative experiments are carried on under direction of the college, many beekeepers in various parts of the province working on the same problem at the same time and all reporting the results at the end of the season. As many as 400 cooperate in this work.

The library of beekeeping is very complete, containing files of most of the existing bee journals printed in the English language, as well as current books and those which have long been out of print. There is an extensive card index which enables one to locate most that has been written on any subject relating to bee-culture.

Our picture shows Mr. Pettit and his assistants. Of these Mr. Stanley Stewart is a special inspector and has charge of the mechanical work of the department. Mr. Joseph Roberts is apiary assistant and photographer. Mr. Geo. F. Kingsmill is assistant in charge of apiary demonstrations and assists also with lectures and experimental work. Miss Koch is department stenographer and bookkeeper, while Miss Hamilton has charge of the filing of records, cor-



A DEMONSTRATION IN WAX RENDERING AT THE ONTARIO COLLEGE



A GROUP OF STUDENTS AT THE ONTARIO SHORT COURSE

respondence, etc.

Prof. F. E. Millen who now has charge of the beekeeping work in the Michigan State University, Mr. Kingsmill who is assistant professor with Mr. Pettit, and E. M. Aitkins who is assistant to the Dominion Apiarist at Ottawa, are among the early graduates of the department.

INSPECTION WORK.

There are 20 inspectors in the province appointed by the Lieutenant-Governor on recommendation of the minister of agriculture. Each inspector has from one to three counties, which is plenty for one man to cover thoroughly. Mr. James Armstrong is chief inspector and assists Mr. Pettit during short courses, etc., by giving instruction in the detection and treatment of disease. While the provincial apiarist is not responsible for the appointment of the inspectors, they work under his direction and report to him. This makes possible uniform work and the practical cooperation of the inspectors in different counties.

While inspection of the individual apiaries still is carried on, they have found that apiary demonstrations are the most effective method of reaching

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large numbers of beekeepers. By advertising such a demonstration in advance, it is possible to instruct a number of people in the detection of disease and its treatment by going through the apiary and giving each colony the exact attention that its condition demands. Last year the average attendance at these demonstrations was 32 persons, a total of 1800 attending the demonstrations during the season. In

no other way could such a large number of persons be given proper instruction in the care of diseased apiaries.

The provincial apiarist is also secretary of the beekeepers' association. While the association elects its own officers they have the advantage of the college organization which can do many things not otherwise possible, and at a great saving in expense.

building was erected in the excavation the sand was filled in to the level of the eaves all around.

About 100 colonies were stacked in the cellar and wintered fairly well; but the black roof absorbed too much heat from the sun during the latter part of winter, and it was difficult to regulate the cellar temperature.

My part of the experience consisted in making regular visits to the cellar during the winter, regulating temperature and reporting on general conditions to the beekeeper who was away for the winter. The first few trips are a well remembered experience. To descend into the black depths of the cellar by the dim light of a candle, to move cautiously up and down the narrow aisles, observe the condition of the clusters, the number of bees on

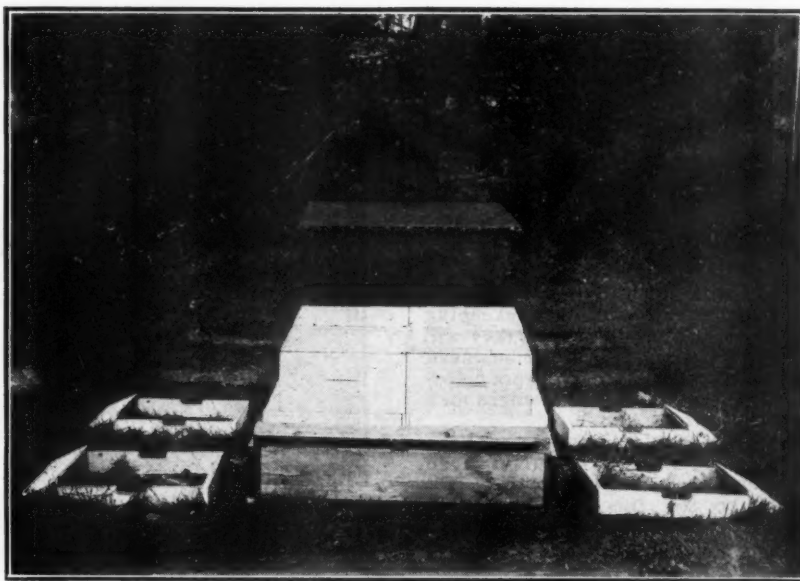
BEE-KEEPING FOR WOMEN

Conducted by Miss EMMA M. WILSON, Marengo, Ill.

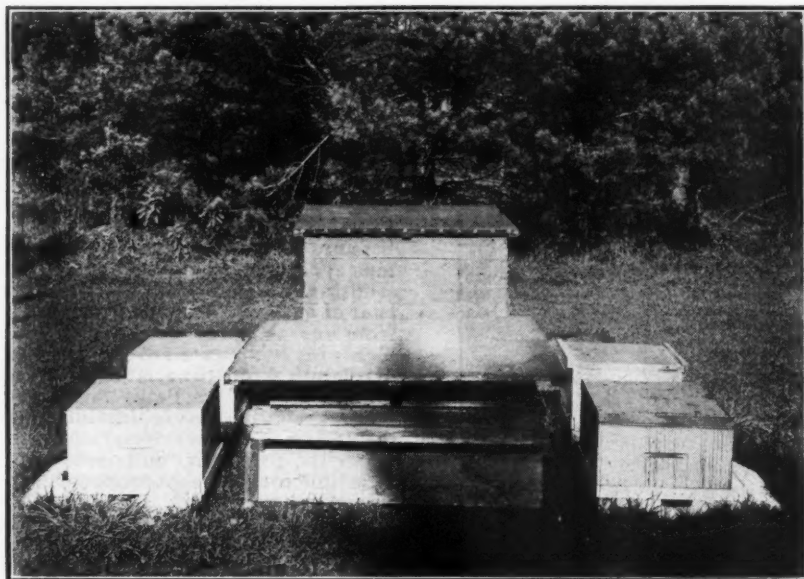
Wintering in Ontario

BY MISS R. B. PETTIT.

MY first experience in wintering bees took place several years before I was a practical beekeeper. It was with a cellar constructed in a sand-hill. The owner of the bees had secured a number of discarded freight car doors, and after an excavation was made in the sand-hill with team and scraper, the doors were set up to form the walls of the cellar. Over this 2 by 11 inch hemlock planks set on edge formed joists for the ceiling. This was boarded on the underside and the 11-inch space filled with dry sawdust. A roof was placed immediately over that, covered with sheeting and felt roofing. An opening in the center of the ceiling provided for ventilation and for a vertical ladder for getting down into the cellar when the outside door was closed in winter. The west end of the gable roof opened out on the upper side of the hill, and the door to the cellar opened at the east end on a level with the ground below the hill. After the



FOUR HIVES ARE LIFTED FROM THEIR SUMMER PLACES ONTO THE STAND



THE QUADRUPLE CASES ARE MADE COLLAPSIBLE
In summer the hives are placed in double rows with just room for the winter cases between the rows

floor, and to listen carefully to the language of the bees, who were telling me as best they could that they were either too warm or too cold; to dodge an occasional bee that shot out at the too close approach of the candle and the curious interloper prying into the privacy of their little bee world, was an experience to be remembered.

When taken out in the spring the bees were placed on the low ground to the east and south of the hill, that they might be protected from cold north and west winds. This hill, though it was at the time sodded over, with a young orchard on it, had been formed by drifting sand and proved to be just the right shape for the wind to come sailing over the top and scoop in on the lower side. Consequently, it did not form a satisfactory wind-break. On the whole, then, the results of wintering in a cellar of this kind were not as good as one could wish.

My next experience was at the close of my first summer in a bee-yard. It consisted in packing about 110 colonies in quadruple cases with hives packed in planer shavings. These quadruple cases are made collapsible. In summer the hives are placed in double

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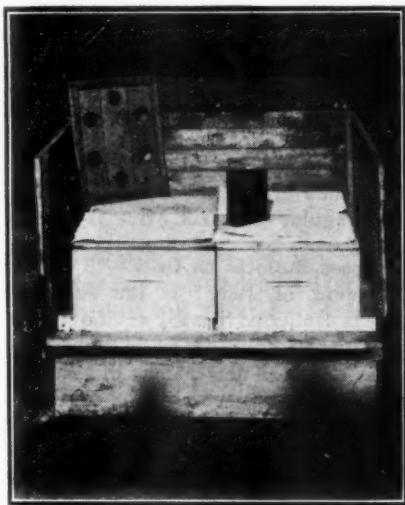
rows facing east and west, with just room for the winter cases between the rows. The stand consisting of 10-inch boards is leveled and the floor placed on it. Four hives are lifted back from the summer stands onto this, being placed in the center back to back and side to side. The sides of the case are then set up, after the entrance bridges are adjusted, and packing material filled in even with the tops of the hives. The summer covers are removed and a feeder board placed on each hive. This feeder board consists of a honey-board with a number of $2\frac{1}{2}$ -inch holes bored in it—usually about four. Feeding is done by placing the syrup in 10 pound friction-top honey pails, with a number of small holes punched in the lid. These are inverted over the holes in the feeder boards, and, of course, the pressure of the atmosphere prevents any drip, provided the lid is sealed properly. The bees do the rest.

One great advantage for this style of

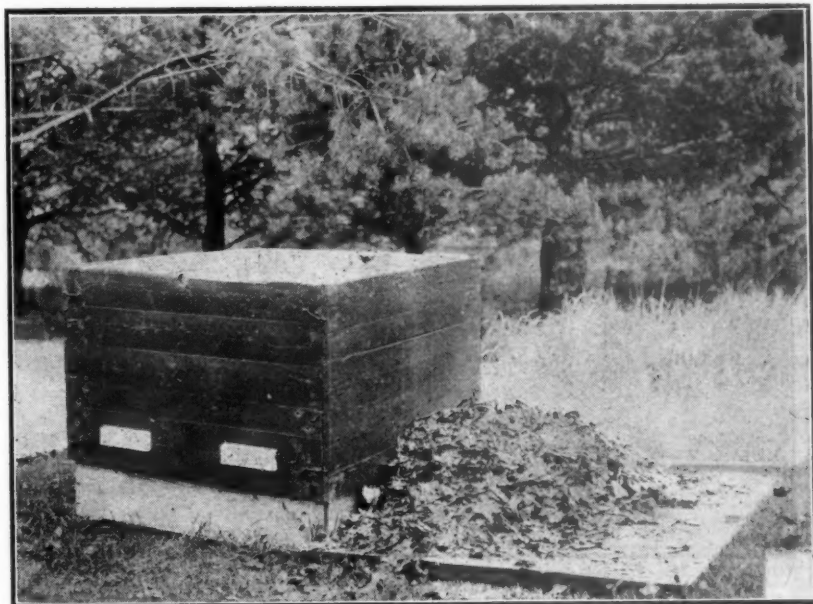
feeder is that it places the feed as near as possible to the cluster, allowing the bees to take it without breaking cluster at all, as is necessary in almost any other style of feeder. If the nights are cool when the feeding is done, packing material is placed around the pails to keep the cluster heat from escaping through the thin feeder board. It is better to have the feed cold when it is put on, as there is more danger of leaking with warm syrup, and the bees take the cold syrup quite rapidly. At present prices of tin, these feeders are rather expensive, but if handled carefully they last quite a number of years. This method of feeding is followed by a number of our leading beekeepers, and is becoming more popular every year.

After the feeder pails are taken off, cloths cut from outer sugar sacks are spread over the feeder boards, several thicknesses of newspaper over that and the packing material is filled in over all. Sometimes the upper packing is held loosely in sacks for convenience in examining colonies early in spring before they are unpacked.

This method of outdoor wintering I have found very satisfactory and have continued to practice it. I do not weigh my hives before packing them, but aim to get them in the cases as soon as possible after the supers are taken off early in September. As soon as the colonies in one yard are packed, the feed is put on, usually three or four pails to the hive. By the time the feed is taken down, another apiary is packed and ready for the pails. Colonies that were heavy in stores will not have taken all of their feed. This is collected and given to colonies that are being fed later. If a fall flow causes brood-rearing in September, feeding is delayed. Only best granulated sugar is used in preparing feed. Loss from granulated stores is too serious a matter to take any chance on feeding honey, or to leave even the heaviest hives without giving them the opportunity of taking some sugar syrup.



SUMMER COVERS ARE REMOVED AND A FEEDER BOARD PLACED ON EACH HIVE



SIDES AND ENDS ARE SET UP AND PACKING MATERIAL PLACED IN

I find it advisable to have each apiary well sheltered by natural or artificial wind screens. The bees winter much better, and it is pleasanter working in the apiary during the windy days, which we often have in the late spring and early fall. Where one has many colonies, the work must go on from day to day whether things are exactly favorable or not.

We clipped queens in the apiary shown in the illustration, last spring when the wind was blowing cold outside, and could not detect any ill results from loss of brood or queens.

It is important that an apiary so sheltered be provided with shade, or that the windbreak be taken down in the summer, if one would avoid excessive swarming.

Another method of cellar wintering which I tried with an apiary of about 80 colonies of bees may be described as follows:

The cellar was deep and large, and had been blasted out of a rocky hillside. The owner had his dwelling over it, and used a part of it for other purposes. Within the cellar a small com-



COLLAPSIBLE QUADRUPLE CASES CONTAINING FOUR COLONIES FIXED FOR THE LONG WINTER

partment was built, boarded up walls and ceiling, and covered with building paper on the sides. On the ceiling he spread sawdust to hold the warmth, and cracks were left in the boards of the ceiling to allow for upward ventilation.

In this cellar within a cellar, the hives were stored away, piled one on top of the other as usual, completely filling the room they occupied, with the exception of narrow aisles just wide enough for one to pass between the piles of hives. In this cellar so completely insulated from outdoor conditions, the bees wintered perfectly. Ventilation was given by opening the outer cellar door, the inner cellar being always left closed. They came out in splendid condition in April.

There are a great variety of outdoor packing cases and devices for feeding used. There are many variations of

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cellar arrangements, but I believe the methods described are typical of most of the wintering in Ontario. Broadly speaking, a line might be drawn from Georgian Bay just north of Lake Simcoe, and in a southeasterly direction to Lake Ontario. Most of the bees south and west of that are wintered on summer stands, and most of them toward the north and east of that line are wintered in cellars. Up until recent years a great deal of cellar wintering was practiced in southwestern Ontario, and one of the best beekeepers in Ontario, a Mr. Bowen, of Niagara Falls, in the southern part of the province, has recently built a rather expensive and very complete cellar for his bees; but the tendency all through the district mentioned is strongly toward outdoor wintering. Even beekeepers in the north and east are interested, and

prepared in the winter cases with plenty of good stores, we can go away and forget them. They are left in the winter cases until settled warm weather. If they need supers before that time, the cases are large enough to allow of supers being put on. If they need feed

or any other attention in the spring that can be done in the packing cases.

But after all is said, as long as there are bees and beekeepers there will be advocates of the different methods of wintering.

Georgetown, Ont.

MISCELLANEOUS



NEWS ITEMS

Bee Meetings Scheduled.—Following is a list of meetings with dates as we now have them. Secretaries are urged to send us dates of meetings as early as possible so that we can give publicity through the Bee Journal:

Illinois State, Springfield, Nov. 15-16
Michigan, Lansing, Nov. 30, Dec. 1-2
Northwestern, Chicago, Dec. 4-5.
Iowa, Des Moines, Dec. 5-6.
Minnesota, Minneapolis, Dec. 5-6.
New York, Canandaigua, Dec. 5-6.

"Pecky" Cypress is the title of a small 60-page handbook issued by the Southern Cypress Manufacturers' Association at New Orleans. Among other things the booklet contains a complete description of "Pecky" Cypress, as written up by an expert for the "Lumber Trade Journal." He avers that cypress contains chemical properties which render it immune to rot. After eating a few holes in the lumber the worm can go no farther.

We believe there is a great future for cypress in the beekeeping line. Al-

though the grade of the wood called "Pecky" would probably not do for beehives, it would be well for beekeepers to make the acquaintance of cypress in all grades as used for all purposes.

Bee Hunting.—There seems to be an unusual demand this year for methods of hunting bee trees. We made the acquaintance of a little book on this subject a short time ago which we think will interest our subscribers. It is entitled "Bee Hunting," and is edited by A. R. Harding. Copies can be furnished from this office if desired. The regular postpaid price is 25 cents.

Press Bulletin on Bees.—"Fall Management of Bees" is the subject of Press Bulletin No. 231 of the University of Missouri. The bulletin, which goes out to all newspapers of that State, advises movable combs, and urges early preparation and careful management for best wintering. There are in Missouri about 40,000 beekeepers owning 200,000 colonies of bees.



This is not a fox ranch, but an apiary enclosed with wind screen of lath. In selecting an apiary site an unused dwelling is secured if possible. Note the rolling country, its steep rising ground with raspberry, sumac and second growth basswood.

—R. B. Pettit, Georgetown.

are experimenting with a view to changing over to that method.

There are quite a few reasons why we like outdoor wintering better. It certainly takes more equipment, and the initial expense is perhaps greater than in a cellar, but the beekeeper is so much more independent; he can pack and feed his bees at his convenience. But for the cellar-wintered bees, one must watch and wait and guess at the best time for putting them in; then perhaps make a mistake by putting in too soon or too late. The same experience is repeated in the spring when the time comes for taking the bees out of the cellar. Cellar-wintered bees after they are removed from their winter quarters are exposed to the cold, inclement weather, that we get at different times for perhaps two months. A cellar requires a certain amount of watching and anxiety all winter to regulate temperature and ventilation. On the other hand, when bees are well



SPEYSIDE APIARY OF MISS PETTIT IN WINTERING CASES

The wind screen is made of plastering lath nailed on forms 6x8 feet; a convenient size for moving

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Honey Boosted Again.—The Chicago News, in its issue of Oct. 2, was asked the following question by a subscriber: "Is not the appetite a safe guide to follow in selection of food?"

A portion of the reply given follows:

Fond parents indulge the "sweet tooth" instinct of their loved ones by means of candy, jams, jellies, syrup, and the never ending list of denatured sweets upon which the happiness of the child is thought to depend so largely.

In these delicacies such denatured products as refined sugar, glucose and sulphured molasses figure to a considerable extent.

The more natural maple sugar and the unrefined natural brown sugar and honey are usually neglected in the preparation of the child's food. As a result the appetite for sweets that is undoubtedly an expression of the requirement of the body for the sugary principles of fruits is converted into one which only appreciates the more concentrated products of the cane refinery, the sulphur plant and the glucose factory.

The jaded appetite of the middle aged man or woman has its beginning in the debased appetite of the sugar fed child. Sugar intoxication is as unnatural as whiskey intoxication.

Northwestern Meeting at Chicago.

The Chicago-Northwestern Beekeepers' Association will meet in Chicago on Dec. 4 and 5, 1916. For information address the secretary, Mr. John C. Bull, Route 8, Valparaiso, Ind.

Quebec Meeting.—The Beekeepers' Association of the Province of Quebec will hold its annual meeting at Montreal Nov. 15 and 16. For particulars, address Oscar Comiré, Secretary, Abenakis Springs, Quebec.

New York State Meeting.—The annual meeting of the New York State Association of Beekeepers' Societies will be held in Canandaigua, N. Y., Dec. 5 and 6. F. Greiner, Secretary, Naples, N. Y.

Iowa Meeting.—The Iowa State Beekeepers' Association will meet in Des Moines Dec. 5 and 6. Everybody invited.

For program, address Hamlin B. Miller, Marshalltown, Iowa.

Illinois Meeting.—The 26th annual meeting of the Illinois State Beekeepers' Association will be held in Springfield on Wednesday and Thursday, Nov. 15 and 16, 1916. Further notice will be given in the dailies, and individual notices with program sent to all the members of the association. Jas. A. Stone, Secretary, Rt. 4, Springfield, Ill.

Minnesota Convention.—The Minnesota State Beekeepers' Association will meet at West Hotel, Minneapolis, Minn., Dec. 5 and 6, 1916.

For information concerning this meeting address L. V. France, Secretary, University Farm, St. Paul, Minn.

Western New York Producers Meet.

—The annual meeting of the Western New York Honey Producers' Association will be held Nov. 14 to 16, at the American Hotel Hall at Akron, N. Y. As this has been a good season for beekeepers a good attendance is expected. Every one interested in bees is welcome. Wm. F. VOLLMER, Sec.

Chicago Bank Uses Bees to Teach Thrift.

—A well known Chicago bank, the Greenebaum Sons Bank & Trust Company, recently attracted considerable new business by means of a window display in which bees were exhibited. The idea was originated by W. J. Greenebaum, cashier of the bank,

honey, they would be starving now. Are you saving any money for future use?"

"If you want some honey in later days when honey may be hard to get, start storing a little every day."

An accident when the hives were being brought to the bank turned out to be "silver lined." The man carrying the glass hives collided with a pedestrian just before entering the bank, and dropped a hive containing several thousand bees. The result was a near-riot which, however, was rather more amusing than serious, and the newspapers found in it material for first-page articles, all of which mentioned the unique window display. Mr. Greenebaum was quoted as saying: "I am sorry this accident happened. I wanted to give Chicagoans a lesson in economy, but did not intend it should be driven in that hard."

"The display drew large crowds of interested spectators."

A County Exhibit.—Langlade County, Wis., beemen put on an excellent display at the Free County Fair at Antigo.



A CHICAGO BANK USES HONEY BEES TO TEACH THRIFT

who decided that live bees could be made to serve as an object lesson in thrift.

The window was arranged to represent a rural scene, with a clover field, farm house, and grazing cattle. The base of the window was covered with grass matting, earth, and bark, and two regulation beehives were installed. Savings banks were strewn along a path leading from the hives to the clover field, and sign posts drove home the lesson of thrift by means of the following legends:

"If men were as wise as these little bees, there would never be any paupers."

"If these bees had not saved their

play at the Free County Fair at Antigo, Sept. 19 to 22. The fair management placed a large booth in the main fair building at the disposal of the beekeepers. The booth was attractively decorated with bunting, and honey, both comb and extracted, and other bee-products were tastefully arranged about the booth. Bee-supplies also formed part of the exhibit.

Interested house-wives were given an attractive booklet with recipes on the use of honey in cooking. Proof of the esteem in which the booklets are held was shown in the way neighbors and friends of women who got them came back the next day for copies.

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As an advertising proposition for the beemen, the booth was certainly worth while. One beeman sold 50 gallons of honey during the fair, and the first morning after the close received an order for 25 gallons more from a Minneapolis man who had visited the fair.

The exhibit was put on under the auspices of the Northern Wisconsin Beekeepers' Association, organized at Antigo in August.

Sanders to Pennsylvania.—J. G. Sanders, who has been State Entomologist for Wisconsin, and as such has shown his interest in beekeeping, has resigned to become Economist Zoologist with the University of Pennsylvania at Harrisburg. No doubt that he will carry his interest in bees to this new work.

That Carolina Bee Club Again.—Bruce Anderson, that live county agent mentioned in one of our summer numbers is out with another bulletin to his bee club. This time he is advising his members to get their bees ready for winter. The items which he insists make for good wintering are good queens in strong colonies, plenty of good feed, and some sort of winter protection. Right again.

Dr. White to Cereal and Forage Insect Investigation.—“Dr. G. F. White has concluded his investigations of bee diseases with the Government at Washington, D. C., and will be on furlough until April 1, 1917, at which time he will resume insect disease investigations and will be connected with the office of Cereal & Forage Insect Investigations.”

The bee disease investigations will progress without interruption, the work being done by Dr. A. H. McCray, for several years of the staff, and since July, 1915 in charge of the disease work at the Drummond Laboratory.

Extension Work by the Government Department.—Beekeepers will be interested in the following letter from Dr. E. F. Phillips, in charge of bee investigations at Washington, D. C.:

The present Agricultural Appropriation bill carries an increase of \$5000 for the work in beekeeping in the Bureau of Apiculture. It is proposed using this fund to inaugurate extension and demonstration work in beekeeping in the southern States, similar to the work done by Mr. E. G. Carr for this bureau last year in North Carolina. Arrangements have already been completed for the continuance of the work in North Carolina, in cooperation with the North Carolina Department of Agriculture, and Mr. George H. Rea, former inspector of apiaries of Pennsylvania, has gone to Raleigh to begin

the work. Negotiations are under way for similar work in another southern State, concerning which announcement will be made later. A third man is to be employed to do work of a more general character throughout the South, in cooperation with the office of Extension Work in the South, of this department. In all cases the men employed are to work in close cooperation with the County Agricultural Agents.

The southern States offer great opportunity for beekeeping, and much interest has been shown in his work. There are no sections of the country where there are more bees, although many of them receive inadequate care. An interesting fact is that the South now consumes almost all of its own honey and buys some from other sections of the country. For these and many other reasons, it has seemed best to confine this work for the present to the southern States.

DEATH OF DR. JOHN CLINE

Dr. Cline was born at Followfield, Crawford Co., Pa., Feb. 24, 1818, and died at the home of his son, J. G. Cline, in the town of Fayette, Wis., Sept. 28, 1916.

He came to Wisconsin in 1851, and purchased a farm on which he resided until a few years ago, when the infirmities of his unusual age compelled him to give up the more strenuous efforts of farm life.

Dr. Cline was an enthusiastic beekeeper. His experience extended over a continuous period of 77 years, and until two years ago, alone, cared for an apiary numbering from 50 to 100 colonies. He was probably in point of age and continuous service the oldest beekeeper in Wisconsin. He was a quiet enthusiast on the subject, and was a ready instructor to those who needed his counsel.

It was my good fortune to know Dr. Cline intimately for 65 years, and to him I owe more than to any other man for the success that I have had in the profession we both so dearly loved.

He was for many years a member of the National Beekeepers' Association. In the passing of Dr. Cline the profession has met with a serious loss, his neighbors a true friend, and the world a noble christian character.

C. R. BRIDGMAN.

Dark Honey Crop Report.—The Crop Report Committee of the Ontario Beekeepers' Association met on Friday, Sept. 8, to consider the crop of dark honey. It was found that 89 members had reported 91,325 pounds from 5091 colonies, being an average of 18 pounds per colony. This is about the same as last year's average, but owing to high prices prevailing in all similar lines, the committee advises members to ask 8½ cents to 9 cents per pound wholesale, depending upon the size of the package and the quantity sold in one order. No buckwheat honey should be retailed for less than 10 cents per pound.

In issuing this report a year ago, the statement was made that the local demand for white honey was exceedingly

good. The situation this year is if anything better than a year ago, and the members have sold out entirely at prices as good as, if not better, than those recommended by the committee. When it is remembered that nearly a year must go around before another crop is harvested, and weather conditions have not been the best for next year's clover, beekeepers need have no worry about selling their honey at good prices.

Of course, dealers have been able to secure a certain amount of cheap honey. It is always this way, and while the beekeepers who sold cheap honey are the losers, it is good for the honey trade that dealers are able to make an extra good profit on some of the honey they handle. The secretary frequently has enquiries for names of beekeepers having honey for sale, and while responsibility is not assumed he is willing to put dealer and member in communication if so requested by any member.

Signed by the committee:

WM. COUSE, W. J. CRAIG,
H. B. SIBBALD, MORLEY PETTIT,
Sec.-Treas.

Michigan's Thanksgiving Convention.—Michigan beekeepers will be able to enjoy a very profitable program at the forthcoming convention in Lansing, on Nov. 30, Dec. 1 and 2. While the list of speakers is not yet complete, a glance will show that it will pay every beekeeper to make a special effort to be present and enjoy the feast of good things both mentally and bodily.

Among other things we shall have:

Mr. David Running, Filion—President's Address.

Mr. C. P. Dadant, Hamilton, Ill.—“Prevention of Swarming.”

Mr. E. R. Root, Medina, Ohio—“Establishing a Trade Name for Honey.”

Mr. E. D. Townsend, Northstar—“The Sale of Honey.”

Dr. E. F. Phillips, Washington, D. C.—“Extension Work in Beekeeping.”

Mr. Frank C. Pellett, Atlantic, Iowa—“Some Beekeepers I Have Met.” (Illustrated lecture.)

Mr. A. G. Woodman, Grand Rapids—“Possibilities of the Combless Package.”

Mr. Ira D. Bartlett, East Jordan—“Choosing a Location for Beekeeping.”

Mr. Leonard Griggs, Flint—“Successful Wintering of Bees in Cellar.”

Mr. Floyd Markham, Ypsilanti—“Which Should Beekeepers Produce, Extracted or Comb Honey?”

Mr. F. Eric Millen, East Lansing—“Some Reasons for Failures in Beekeeping.”

A banquet supper will be given by Messrs. Root & Co., of Medina, Ohio, and Messrs. M. H. Hunt & Son, of Lansing, Mich.

This year the association is giving away four medals, to be won outright for exhibits of about 150 pounds of comb and extracted honey. The comb honey medals will bear the portrait of Dr. C. C. Miller, and the extracted honey medals will bear the portrait of L. L. Langstroth—there will be a silver and a bronze medal for each class.

For the small class exhibits there will be nicely gotten up diplomas, and these will take the place of cash or bee-supplies which have been given formerly. These diplomas should prove good advertisements to the winners in their home localities, and we feel sure that the winners will be proud of them.

Following is a list of exhibits:

A, 150 sections of comb honey—1st prize

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mium, Miller silver medal; 2d, bronze medal; 3d, diploma.

7. 150 pounds of extracted honey—1st premium, Langstroth silver medal; 2d, bronze medal; 3d, diploma.

8. 12 sections of clover comb honey—1st, 2d, and 3d premiums, diplomas.

9. 12 sections of raspberry or other light comb honey—1st, 2d, and 3d premiums, diplomas.

10. 12 sections of amber or dark honey—1st, 2d, and 3d premiums, diplomas.

11. 12 pounds of clover extracted honey—1st, 2d, and 3d premiums, diplomas.

12. 12 pounds of raspberry or other light extracted honey—1st, 2d, and 3d premiums, diplomas.

13. 28 pounds of amber or dark extracted honey—1st, 2d, and 3d premiums, diplomas.

14. 12 pounds of extracted candied honey—most salable condition for market—1st, 2d, and 3d premiums, diplomas.

15. 12 pounds of beeswax—1st, 2d, and 3d premiums, diplomas.

16. One dozen honey cookies.

17. One dozen bran honey cookies.

18. Two dozen honey fruit cake.

19. Best new apiarian appliance.

Diplomas will be given for classes 1 to 19 as in other classes. Exhibits must not bear the name or mark of exhibitor

until after judged. All exhibits must be the product of the exhibitor or a member of his family.

All exhibits must be in place on the evening of Nov. 30. The gold medal is given by the American manufacturers of bee-supplies, and is known as the Manufacturers' medal.

The silver medal is given by the Michigan jobbers in bee-supplies, and is known as Jobbers' medal.

The bronze medal is given by the association, and is known as the Association medal.

The challenge medals must be won three times before becoming the property of the exhibitor. This is the second year for competition for these medals.

Programs will be sent to all members of the association, and can be secured by any other interested beekeeper.

F. ERIC MILLEN, Sec.-Treas.
East Lansing, Mich.

that another virgin was in the nucleus and did the gnawing. Virgins have a craze for gnawing down queen-cells, even the cells from which they themselves have emerged. Only a day ago I found in a nursery a virgin not a day old, and she had torn out one side of the cell from which she had emerged.

Kind of Bees

What is the difference between golden Italian bees, leather colored and 3-banded? Which do you think are the best workers, and the best color?

I heard a man say this summer there was only one kind of black bees and that was the German. I was at R. A. Morgan's, of Vermillion, S. Dak., and he had some black bees that were as big or bigger than the Italians. They were very gentle. What kind were they? I am starting beekeeping again and have full blooded stock only, and expect to keep them that way. I want to use 10-frame hives with 8-frame supers, or 8-frame hives on top and leave space at the back so I can remove brood in the middle of the honey flow and replace it with empty frames without lifting off the supers on top of the hives, then I can use that brood for increase or put it above, and when the brood hatches the frames will be filled with honey.

Do you think the plan will be all right or do you know of any better way?

IOWA.

ANSWER—Golden Italians are supposed to have workers mostly with five bands. Leather-colored are what the name indicates, much the same color as fair leather, being darker than the brighter yellow bees. Like most others, I prefer the darker bees, although there are good and poor in all kinds.

Carniolan and Caucasians are much like black bees in color, but with lighter bands. Sometimes it is difficult to distinguish them from blacks.

I know of only one kind of black bees, and yet there may be a difference in that one kind. I suppose from what you say that Mr. Morgan's bees were blacks.

Better not try the plan you mention on a large scale until you find out whether you will like it.

Kind of Queens Compared—Requeening

1. Taking the golden, 3 banded and leather colored Italians, how do they compare in gentleness, hardness, and honey getting qualities, taken as a race?

2. Are the goldens more inclined to "borrow" or rob than the others mentioned?

3. Will they stand our cold winters, wintering out, as well as the others?

4. I had some leather-colored bees but they have "mixed" with others, and I now have everything from three banders to all black in every hive, but they are very quiet and are fair workers, but if I was sure that I would not get something worse than what I have, I would like to get some full-blooded stock, and I am "struck" on the appearance of the goldens. Would you advise me to make the change?

5. Which would be best, to requeen early in the spring and avoid the hybrid drones or requeen during swarming time and use fertile queens from a dealer?

6. Is there any way to tell which hive a swarm came from, when, as they frequently do, they have come out unobserved? If the queen is clipped, one does not know where to look for her, and if one practices the method of hiving the swarm on the old stand, putting the old colony on a new stand to discourage after-swarming, one is equally "up against it" if it is not known which colony cast the swarm.

7. Some beekeepers here leave their extracting combs on the hive until October or November, allowing the bees to thoroughly ripen and thicken it, and at the same time they will carry down what they need for winter stores; of course, this "easy way" is open to criticism, but the main problem here is to get the bees off the combs. Escapes are very slow, and in some cases will not remove them at all, so some have tried the "carbolic acid method." A dilute solution of carbolic acid is used and a few drops are sprinkled on a cloth which is laid over

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to
DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer bee-keeping questions by mail.

How to Winter Afterswarms

What would be the best thing to do with four colonies of bees that are afterswarms and have stored practically no honey for their use this winter? They have young queens and are breeding good. There are about six frames of bees in each colony and nearly all of the space is filled with honey. Not much prospect of any honey flow this fall.

I have ten other colonies in good shape. Would it be practical to unite them with some of those colonies? And if so, how would be the best way to do it? INDIANA.

ANSWERS.—From your description these are good colonies that you can have ready for winter by merely feeding them. If you wish to unite each one of them with another colony, there would be nothing difficult in that. Kill the queen that you think poorest; put a sheet of newspaper over one of them (of course directly over the brood-frames), set the other hive (without any bottom-board) directly on this, and three days or more later put the best frames of brood in the lower story. You can unite without killing either queen, although it is at least a little better to kill one of them.

Introducing Queens—Hatching Queen in Cell

In the distress (or smoke) method of introducing queens, how many puffs of white, choky smoke must be given? Would four good puffs with a good smoker be too much? Must the roar caused by the puffs be heard continually for ten or more minutes, namely up to the moment when the one-inch wide space at the entrance is opened again; or can it go dwindling down so that it can hardly be heard at the end of ten minutes, and if not heard at all at the end of ten minutes is it a sure sign not enough smoke was given?

In the distress method, Arthur C. Miller, in *Gleanings in Bee Culture*, page 63, says that a failure in this method is known the same or next day. How is it known, by opening the hive, or if the queen is not accepted, do you find her at the entrance of the hive dead?

In the starvation (Simmins) method, is failure known also the same or next day? How is it known?

Put a fine queen-cell into a cell protector,

put the protector into a nucleus into which I shook about two cupfuls of bees and put the nucleus in a dark cellar for 70 hours. When I took the nucleus out and looked at the protector, the cell was almost all eaten up by the bees, though I had put a tin stopper at the wide entrance of the protector. What was the mistake in this case, as there was no queen in the nucleus?

MONTANA.

ANSWER.—I suppose three puffs, if strong enough, would be all right, and four puffs could hardly do much harm. The roaring would die down in ten minutes or less.

In the place to which you refer in *Gleanings*, Mr. Arthur C. Miller says: "Even were it not better than the cage method, I should continue to use it, for a failure is known the same or the next day, while by the cage method it is sometimes a week before the queen is out, and a day or two more before we know she is safe." I think his idea is that when the distress method is used we will find the queen laying the same or the next day, while with the cage method it will be a day later, or more, before the queen begins to lay, and sometimes more than a week later.

By the Simmins method the queen ought to be laying sooner than if caged. She certainly has the chance to lay at once if kindly accepted, whereas there is delay by caging, no matter how friendly the bees may be. The presence of eggs is proof of success, while the absence of eggs is proof of failure, although by no means sure proof, for the laying may be much delayed. The presence of the dead queen at the entrance is prompt proof of failure, although one cannot always be sure of finding her there after she is killed.

In the case of the cell gnawed to pieces it does not necessarily follow that there was any mistake on your part. It may merely mean that the bees departed from their usual behavior, and did not respect the point of the cell, but gnawed it down. I should have just a little suspicion, however,

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the frames and the cover put on for about 20 minutes or less when every bee will be driven down in the brood-chamber, or even out of the hive if left too long, and if the cloth is left on the super not a robber bee will touch it. Do you think this method injurious to the bees or brood if used carefully?

8. Do the 4x5 plain sections sell as readily as the 4x4x4 beeway section on the city honey markets, quality and grade of honey being equal?

INQUIRER.

ANSWERS.—1. If you will look through recent numbers you will find your questions as to races mostly answered. It should be understood that these three kinds cannot be classified as exactly distinct and separate in their characteristics. There are variations in all three. Indeed it should be said that 3-banders and leather-colored are not to be counted as two classes, for when we speak of leather-colored we mean 3-banded Italians of a darker hue, and when you say 3-banders you no doubt mean the lighter-colored. You will find good, bad, and indifferent in all three. You may have leather-colored that are poor, and you might get goldens better, and *vice versa*. On the whole I should in general consider that the good characteristics you mention are more likely to be found in the leather-colored than in the others, although the beauty of the goldens is not a thing to be despised.

2. I think not.

3. Yes, if you get a good strain, although some of them are likely to be a little tender.

4. Other things being equal, your best plan would be to get at least one pure queen of the kind you started with, breeding from her and weeding out all poorer stock. Having already part of that blood, it will be easier to get the whole of that kind. You can, of course, change all into goldens, but you're hardly so sure of good stock.

5. Do both. Get a pure queen early, and breed from her so as to introduce her daughters late in the season, and any time when there is any need of a new queen. I am not entirely certain what you mean as to "hybrid drones." If you get a pure queen, her daughter's drones will be pure. It's not so important about a drone's mother, but he should have a good grandmother.

6. Some sprinkle flour on a few bees of the swarm, and then watch which hive the floury bees enter. If your queens are clipped you can nearly always tell from which hive a swarm came by watching to which hive it returns.

7. I hardly think so.

8. When the 4x5 sections first made their appearance, much was said about their bringing a higher price, and possibly they did in some markets. Possibly that is still the case, but in markets that I know about the common 4x4x4 have rather the preference.

How to Get Rid of Moth Larvae

1. I would like to know what to do with a colony of bees that is troubled with moth; since early in the season I have seen the bees carrying out moth larvae and web, but thinking they would be able to clean the moth out I left them alone until I saw that something would have to be done, so today, Sept. 14, I transferred the bees into a new hive. There was not much honey or brood in the old hive, but there certainly was a lot of moth larvae. After I found the queen and put her in the new hive the bees followed, I then turned the combs out on a board and let the chickens clean out the larva.

2. Would moth-balls in the hive have done any good early in the season, or can you suggest anything that could have been done? Do you think it is possible for me to save this colony?

MICHIGAN.

1. If you put in enough moth-balls you can keep out the moth, but you will drive out the bees; so don't try moth-balls. The thing

to do is to have colonies so vigorous and strong that they will not let the moth get the upper hand. Italians are away ahead of blacks in fighting the moth; so Italianize your stock and you need pay no attention to the moth unless you have a *very* weak colony. On your part, you can do something to help. If a colony is weak, don't let it have more combs than it can cover, and strengthen it as soon as you can. If you care to take the trouble, you can dig the big larvae out of the combs. With a pin or wire nail, pick open one end of the burrow of a larva, then beginning at the other end pick open until you drive the larva out of the hole first made, when you can wreak your vengeance upon it. Another way is to squirt kerosene or gasoline upon the miscreant with a sewing-machine oil-can.

2. If the colony is strong enough, and there is a strong fall flow, it ought to make out; if the flow is not enough you will have to feed.

Room for Queen—What Kind of Hives for Comb Honey?

1. I run entirely for extracted honey and have been giving the queen free access to all the supers above the brood-chamber, sometimes two and three supers. The queen lays in all the supers now, and when I examine each colony every seven days, and have to go through all supers to examine the brood.

2. If I put on an excluder and keep the queen below, is the brood-chamber of an 8-frame hive large enough for a prolific queen; if not, is a 10-frame hive large enough?

3. For comb honey do you use 8 or 10 frame hives?

4. A large beekeeper told me that he uses 8-frame hives exclusively for comb honey, and that he takes out one frame on each side and puts a dummy in their place, and only allows the queen six frames for a brood-chamber and says that is enough. What is your opinion of this?

5. Do you think golden bees are immune from European foulbrood?

6. Do you think golden bees are as good honey gatherers as other bees? Which do you prefer? I want to requeen this fall.

IOWA.

ANSWERS.—1. Wouldn't it lighten the job if you didn't go through your hives quite so often? Don't you think ten days will do as well as seven?

2. During the heavy harvest eight frames will accommodate most queens, provided she keeps them all well filled with brood. Some queens will do this, and some will leave the two outside combs for honey and pollen, with quite a circle of honey in the other frames. A 10-frame hive is safer.

3. Eight-frame; but if I were a beginner anew I should do some studying about having a larger hive.

4. Perhaps his queens are satisfied with only six combs; I think mine would strike.

5. I don't believe any bee is entirely immune, although some are more nearly immune than others. I would take my chances on leather-colored Italians, although some goldens may be just as good.

6. Taken as a whole, I think the leather-colored will excel, although some goldens may be just as good. There are good and bad in both.

Faulty Queen

On June 14 I took three frames of brood and ripe queen-cells for a start and closed the entrance 24 hours. July 4 I gave a frame of brood with queen-cell, having found evidence that they were queenless. July 26 I gave them a frame of brood, there being no queen present. August 3 I gave a frame with brood and bees, from a desire to keep the colony in fair strength. August 27 I found unsealed brood. September 2 I found sealed brood, apparently drone-brood in worker-cells (and a few worker brood), two sides of one frame well covered and a small quantity on two other frames. There were two sealed queen-cells and one or two unsealed.

The sealed cells were cut out and the queen taken away. She was a small queen and a very slow mover, but I could not see any defect about her.

This day I have ordered an untested queen to put in this hive.

1. Do you call this a drone-layer?

2. If so, how do you account for a few normal worker cells?

3. What would have hatched from those queen-cells?

4. Will this colony be likely to accept a laying queen?

5. How should this colony have been managed from July, when they were found to be queenless?

ILLINOIS.

ANSWERS.—1. I hardly know. Usually the term "drone layer" is applied to a queen which produces drone-brood only. A queen that has a small proportion of drone-brood in worker-cells is generally called a failing queen, but when this happens with a queen when she first begins to lay, I know of no name for her except to call her a poor queen. In the present case there was so small a proportion of worker-brood that she was certainly a "poor" queen, and it would be hardly out of the way to call her a drone-layer.

2. As already hinted, faulty queens run all the way from having only a small proportion of drones in worker-cells up to those which produce no worker-brood at all. This queen just happened to be one of those that have mostly drone-brood.

3. Possibly queens; likely nothing; for when bees try to make a queen out of drone-brood, the drone seems never to hatch out.

4. Perhaps, but the chances are not the best.

5. The best thing would have been to unite it with a normal colony, starting a new nucleus; or, to take away all combs with adhering bees (giving them to other colonies), then put in the hive one or two frames of brood with adhering bees. The field-bees would then return to give heart to the new comers.

Destroying Moth

I have several hives that are infected by grubs from the eggs of millers. I would like to know if there is any way by which I could kill these grubs and eggs without spoiling the combs for the bees?

IOWA.

ANSWER.—The easiest and best way to have such combs cleaned up is to give them to a strong colony of bees, and for this purpose Italians are greatly superior to blacks. Another easy way is to leave them outdoors through the winter, for freezing destroys both larvae and eggs. If neither of these ways is available, and you want to get rid of the larger larvae at once, take a small oil-can, such as used for sewing-machines, and squirt a little gasoline on the miscreant. You may fumigate the combs with sulphur, but this does not destroy the eggs, and so must be repeated in perhaps two weeks. Carbon disulphide will destroy eggs as well as larvae. Tier up the combs in hive-bodies, an empty body on top, and in this put a saucer and pour it half full of the liquid and cover up quickly.

Worms in Hive

I am sending an unfilled section of honey as a sample to show what has destroyed the colony of bees that it was taken from.

I examined all the hives yesterday, and was surprised to find this colony destroyed and all full of eggs, and these worms in the sections and brood-chamber. All of the honey is gone, and nothing but the comb left. There are a lot of web in the space between each frame full of dead and live bees. The sections were all full of honey, mostly capped about six weeks ago.

1. What kind of an insect or worm is it, and what is its name?

2. If the bees from another colony would

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room that hive and carry the honey back to their hive, would they get infested with it, too?

3. Could I clean the sections and let them be filled next year, as the combs in some of them look to be in good condition?

4. Has this worm gotten into the hive and compelled the bees to leave, and then some other bees robbed the honey? ILLINOIS.

ANSWERS.—1. It is the wax-moth (*Galleria mellonella*), called also bee-moth, which is found almost everywhere where bees are kept.

2. No.

3. Yes.

4. The moth did not take full possession until the colony became very weak. You will probably always find more or less of the larvæ of the wax-moth in your hives as long as you keep bees, but they are not likely to make any great trouble so long as colonies are strong, especially if you have Italians. Black bees give up more readily. In the present case the likelihood is that the colony became queenless and weak, and then the moth was allowed to have its own way. Have Italians and only strong colonies, and you need pay no attention to the moth.

Worms Again

I have one colony of bees in an 8-frame hive, which gathered no honey this summer. They started building one comb in the super, but that's as far as they got. I looked them over and found them full of those white worms. What are they, and what do they do, and what should I do? MINNESOTA.

ANSWER.—The white worms you found are the larvæ of the wax-moth, but they are not the cause of the trouble, and only came in because of the defenseless condition of the colony. See reply to "Illinois."

Honey for Winter

1. On Sept. 12 I took off a super about one-half sealed over. I stored it, placing paper above and below; tried to get it about air tight. On Sept. 23 I reopened it and found several small white worms; some in the comb looked like the bee-moth worm. What was it and what caused it?

2. Will the bees store enough honey in the hive-body to run them through winter, if the super is left on until freezing weather?

3. Which are considered the better, golden or leather-colored Italian bees, for honey gatherers? MISSOURI.

ANSWERS.—1. They are the larvæ of the wax-moth, that came from eggs laid while the super was on the hive. See answer to "Illinois."

2. If extracting combs are in the super it is uncertain. If sections containing honey are left on until freezing, there is little doubt that enough honey will be in the brood-chamber for winter.

3. The best goldens are better than the poorest leather-colored, and *vice versa*. On the whole the leather-colored are generally preferred.

Uniting Colonies—Dummies

1. I expect to unite quite a number of colonies, and when it will come to making up, what is to be the final brood-chamber? I feel a little in doubt about where to place the frames with honey, viz.: half and half at each side and others in the middle, or all on one side and the frames on the other, or how?

2. How much better, if at all, are dummies that fill up *exactly* a space analogous to a frame, even so that the bees can fly up between, or just anything to fill the space not occupied by frames? The question about dummies, is especially so as to use some with anti-swarm operations, and also when a super is over the colony. PENNSYLVANIA.

ANSWERS.—1. You can hardly go wrong to arrange the combs in any kind of order. To get enough honey in the hive it is not likely that you will have any combs entirely

empty, neither is it likely that they will all be entirely full. So with any sort of arrangement there will be some empty space in the lower parts of the combs, enough to accommodate the bees, although some hold that bees really need no such empty space. When bees are left to their own devices they usually have the outside combs fullest, and a hemisphere of empty cells centrally.

If you want to be particular about it you can try to imitate this.

2. It doesn't matter at all, just so the bees are not allowed to build in the vacancy. But at any time when no queen is in the colony, only a single dummy is needed, and that next to the frame or frames present, for bees rarely build comb in a queenless colony.

REPORTS AND EXPERIENCES

Pound Packages

Have you any data on how far bees in pound packages can be successfully shipped by express? I do not believe they can be successfully shipped from California to Illinois, and I base this belief on two experiments. Last year I ordered two one-pound packages from one of the largest dealers in bees in that State. The bees came in the latter part of June, a little late to be sure, and were practically all dead, so that I simply turned them all out on the ground.

The California firm agreed to duplicate the order this spring, and did so, the two one-pound packages arriving June 1, but, as before, the bees were, I should say, 95 percent dead.

I cannot blame the concern which shipped the bees, as they are certainly up-to-date in their methods. In order to acquire this knowledge I paid \$3.00 for bees and two express charges of \$1.37 each. On the other hand I have received from Texas half a dozen pound packages of bees, and in each instance they arrived in fine condition. My experience, therefore, leads me to think that while bees may stand a thousand mile trip by express they are very likely to succumb when the distance is doubled.

Glen Elynn, Ill.

SUBSCRIBER.

[It is our opinion that properly packed bees ought to readily stand the trip from California to Illinois. If others have had experience along this line, we would like to hear from them.—EDITOR.]

Influence of Nurse Bees

I noticed on page 14 of the January number, "The Influence of the Nurse Bees Upon the Young Bees." I had a very cross black colony in my home yard. I made a 2-frame nucleus out of it, and put it away back where no one was passing.

The old colony reared a young queen, and she was very prolific, kept the hive boiling over with bees all the time, so I reared a granddaughter from them, and now all three generations are tame and very prolific.

At first it was not safe to pass through my yard without a veil. Now I can open any hive any time without a veil. The bees are not always to blame for their behavior. The handling of them is more important.

Havelock, N. C.

P. SCHAFFHAUSER.

Season Report for Bee Journal

Sweet clover is the main reliance here, and from some cause there was none this year where it had formerly been abundant, and no where has there been as much as usual, so the yield has varied more than usual, some getting very little surplus and others a better crop than for years.

My own crop was fine, as sweet clover was fairly plentiful and more cleome than I have ever seen before. I am now in the flush of a fine fall flow from Spanish-needle, the first in seven or eight years.

Weather throughout has been favorable for honey gathering, but swarming has been very much less than usual. I only had two swarms from 80 colonies. LOUIS MACEY.

North Platte, Nebr.

Bitter Honey

I think "Tennessee" in American Bee Journal for November, 1915, has hit upon the cause of his trouble with bitter honey in

the supers in spring. While keeping bees in the South I have more than once had a similar experience. The brood-chamber would be solidly packed with this bitter-weed honey; then the next spring, when new honey and new pollen started brood-rearing with a rush, much of the bitter honey would be carried up into the supers and mixed with the new honey. It required only a very small quantity to spoil the flavor of the new crop, as it has about the most bitter taste of anything bitter I ever had the misfortune to get into my mouth. Even the combs that have contained bitterweed honey for any considerable length of time, will impart a "bad taste" to new honey that may be stored in them.

It will pay "Tennessee" to extract all bitter honey remaining in the hives at the beginning of the spring flow, for otherwise he will surely have trouble with it.

I am sure the honey from peach bloom is not bitter. We have hundreds of acres here, and the bees work it continuously from beginning to ending of the blooming period and the honey gathered at this time is always of fine flavor.

I have never known the bees to work either black gum or dogwood sufficiently to prove what the honey is like.

J. D. YANCEY.

Port Columbia, Wash., Nov. 22.

Yellow Sweet Clover Fine

Our bees have done quite well here this season. We had 35 acres of our mammoth yellow bloom and six acres of white sweet bloom. For about three weeks the bees did not accomplish very much on the yellow bloom. It was too rainy. It bloomed for over two months, and they stored away a fine lot of honey. I think before many years the Flathead Valley will be quite a honey country, for many are beginning to plant yellow clover; that is bound to be the coming hay crop. If a wet spell of weather sets in after it is cut, it comes out of it in better shape than any other hay crop I am acquainted with, and for quantity and quality it cannot be beaten, alfalfa not excepted.

J. D. KAUFMAN.

Kalispell, Mont., Oct. 2.

Fine Crop

I commenced with 11 colonies this spring and increased to 18 and caught five swarms, so I have 33 now. My best colony, the one that I did not divide, stored over 150 pounds.

I sold 576 pounds of comb honey at 15 cents, and 1110 pounds of extracted at 10 cents a pound. They averaged me a little over 154 pounds per colony, spring count. Prospects are fine for a good crop next year, so far. White clover is fine. C. W. DALE.

Sedalia, Mo.

The English Routed by Bees

Many a time, in the present European war, bees have proven their fighting qualities. Here is an older example, copied for "Forty-one Years in India."

"All the troops were advancing. Lord Roberts was employed for a little time within an enclosure at Alambagh, when he heard great confusion, as of a panic among his troops on the plain. Getting on the roof, he looked out over the plain and saw the soldiers flying in every direction. There was no firing, and the enemy nowhere to be seen, but evidently something serious had happened to throw the men into such con-

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fusion. The General quickly mounted and rode to the scene. There he found that the enemy was not the Afghans, but a cloud of infuriated bees which were specially active about the bare legs of the Highlanders. The great Lord promptly decided that discretion was the better part of valor in such a contest, and "like Joffre, later on," ordered a general retreat in as good order as possible. Then he made an inquiry and found that the stampede had been the result of the thoughtlessness of an officer of the 9th Lancers, who, to revenge himself of a sting he had just received, had thrust his lance into a hive of bees—instead of suffering it with the sangfroid of an English officer.

BRO. ROMAIN.

St. Francis Xavier College, Shanghai, China.

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of the American Bee Journal, published monthly at Hamilton, Illinois.

Editor—C. P. Dadant.

Managing Editor—M. G. Dadant.

Owner—C. P. Dadant, Hamilton, Ill.

Known bondholders, mortgagees, and other security holders holding one percent or more of total amount of bonds, mortgages or securities—None.

[Signed] M. G. DADANT, Manager.

Sworn to and subscribed before me this 2d day of October, 1916.

[SEAL] T. R. KLAY,
Notary Public.

My Commission expires Mar. 25, 1919.

ARMY AUCTION BARGAINS

Saddles, \$3.00 up. New uniforms, \$1.50 up.
Army 7 shot carbine \$2.50; eiges, 1½ each
U. S. N. Winchester high power rifle 6m/m. \$9.85
Team harness \$21.45 up. C. W. Army Revolver, \$1.65
Remington Army Revolver, \$4.85; eiges, 1c each
Hawker High Power rifle with 200 eiges. \$19.85
15 Acres Government Auction Goods Bargains
Illustrated and described in 428 large page whole-
sale and retail cyclopedia catalogue, mailed 25c
east and 30c west of Mississippi River.

FRANCIS BANNERMAN, 601 BROADWAY, NEW YORK

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.]

BEES AND QUEENS.

PHLEPS' Golden Italian Queens will please you.

TELL several thousand people what you have for sale with a few words in this department.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1 Atf 84 Cortland St., New York City.

PLACE your order early to insure prompt service. Tested, \$1.25; untested, \$1.00. Italians and Goldens. John W. Pharr,
Berclair, Tex.

FOR SALE—300 to 600 colonies of bees, in the famous Hagerman Valley where failure is unknown; very reasonable. Address:
J. E. Hanks, Hagerman, Idaho.

PHLEPS' Golden Italian Bees are hustlers

VIGOROUS prolific Italian queens, \$1.00; 6, \$5.00. My circular gives best methods of introducing. A. V. Small,
2302 Agency Road, St. Joseph, Mo.

LEATHER COLORED "Nutmeg strain" of queens, \$1.00; doz., \$10. Tested, \$1.50. Special price on large lots. Return mail. A. W. Yates, 3 Chapman St., Hartford, Conn.

A LITTLE AD in our classified columns will sell that perfectly good equipment that you no longer need. Only 15 cents per line each insertion.

FOR SALE—35 colonies bees, Italians and mixed, in modern hives; all in good shape for winter. For particulars address,
G. W. Fehleisen, Madrid, Iowa.

My BRIGHT Italian queens will be ready to ship after April 1st at 60c each. Send for price list. Safe arrival and satisfaction guaranteed. M. Bates, Rt. 4, Greenville, Ala.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, \$1.00 each; Tested, \$2.00; Breeders, \$5.00 and \$10.00.
2 Atf J. B. Brockwell, Barnetts, Va.

BEES FOR SALE—A number of well established apiaries in Frio, Bexar and Atascosa, Texas, in the mesquite and guajillo belt have been listed with us for sale on their present sites. Can also furnish bees in car lots. Southwestern Bee Co., San Antonio, Tex.

FOR SALE—The apiary of bees belonging to the late R. A. Elliston, consisting of 240 colonies in first-class condition. Price five dollars per colony, supers included. 1½ miles south of Bureau, Ill. P. O. office address, Princeton, Ill. Mrs. Robt. Elliston.

HONEY AND BEESWAX

WANTED—Extracted honey in any lots. Send sample and prices. Ed Swenson,
Spring Valley, Minn.

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
6 Atf 173 S. Water St., Chicago, Ill.

COMB HONEY our specialty. Highest market prices obtained. Consignments of Extracted Honey also solicited.
Albert Hurt & Co., New Orleans, La.

FOR SALE—Our own crop of extracted white clover honey in barrels or cans. This is as fine quality white clover as we have ever seen. Write for prices and state quantity wanted. Dadant & Sons, Hamilton, Ill.

FOR SALE—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz, sections to case. Extracted, 1200b. cases, 9c per lb. W. A. Latshaw Co.,
Clarion, Mich.

PHLEPS' Golden Italian Queens combine the qualities you want. They are great honey gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; Tested, \$3.00; Breeders, \$5.00 and \$10. C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

No. 1 white comb \$3.50 per case; No. 2, \$3.00. No. 1 fall comb, \$3.00; No. 2, \$2.50; 2, sections to case. Extracted in 60-pound cans, clover, 9c; amber, 8c; amber in pails, 6c, 10 pound or 12 5-pound to case at \$6.00 per case. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-lb. cans or smaller packages. Amber fall honey is of our own extracting and can also be furnished in barrels. Write for sample of kind desired and state quantity you can use. Dadant & Sons, Hamilton, Ill.

QUEENS, improved three-band Italians bred for business, June 1 to Nov. 15. Untested Queens, 75c each; dozen, \$8.00; Select, \$1.00 each; dozen, \$10. Tested Queens, \$1.25; dozen, \$12. Safe arrival and satisfaction guaranteed. H. C. Clemons,
Rt. 3, Williamstown, Ky.

HONEY WANTED—We are in the market for light amber grades of honey also off grades which are suitable for baking. If you have such honey to offer, please send us sample, state the quantity you have, how packed and your lowest price for same. Dadant & Sons, Hamilton, Ill.

FOR SALE—65 cols. Italian bees \$4.00 per col.; 10 cols. hybrids, \$3.50 per col. All from J. T. Moore's strain, and in 8-frame hive bodies in winter cases; standard full depth self-spacing Hoffman frames, 8 to each hive, all combs straight; cols. strong and healthy with stores for winter; would bunch the lot for \$3.25 per col.; a few untested Italian queens, 60c each. Wilmer Clarke,
Earlville, Mad. Co., N. Y.

SUPPLIES.

THE PERFECT Bee Frame Lifter. For descriptive circular address,
Ferd C. Ross, Box 194, Onawa, Iowa.

FOR SALE—Cedar or pine dovetailed hives, also full line of supplies including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co.,
4 Atf Paris, Tex.

FOR SALE—One Detroit Kerosene Engine, 6 hp., used but little, as good as new. Will sell for \$75; cost \$95 new.
The M. C. Silsbee Co., Rt. 3, Cohocton, N. Y.

FOR SALE—200 10-fr. dov. Excelsior covers. Lewis make. New but discolored. In lots of 50@25 cents each.
Dadant & Sons, Hamilton, Ill.

Q.-C. hive yields, on account of its protectiveness, equable temperature, brood-nest work incentive, etc., sixty pounds more than average of others. Can you afford to not test it? Address, W. F. McCready,
Box 2, Estero, Fla.

WANTED—We often have inquiries for old bee books and Bee Journals, and will be glad to buy and sell these for our patrons. Let us know if we can do something for you along this line. Address,
American Bee Journal, Hamilton, Ill.

FOR SALE—800 new metal spaced brood-frames, No. 2 stock, nailed and wired, at \$1.00 per hundred or 400 for \$11. Also 100 loose hanging brood-frames nailed, No. 2 stock, at \$2.50.
The M. C. Silsbee Co.,
Rt. 3, Cohocton, N. Y.

SITUATIONS.

WANTED—Experienced man to work with bees, April 15 to August 15.
C. C. Parsons & Son, Bluff Springs, Fla.

American Bee Journal

Ontario Beekeepers to Meet in Toronto in December.—The Ontario Beekeepers' Association will hold its annual convention on Tuesday, Wednesday and Thursday, Dec. 12, 13, and 14, in Toronto. This later date than usual will be welcomed by the beekeepers, as the great rush of fall apiary work will be over.

A very interesting program, extremely practical, has been arranged by the executive committee. Prominent beekeepers from both Canada and United States will be present. Mr. C. P. Dadant, of Hamilton, Ill., Editor of the American Bee Journal, will take up the question of "Prevention of Natural Swarming." Mr. Dadant is an extensive honey producer, and has harvested over 100,000 pounds of honey this past season. The Dominion Apiarist, Mr. F. W. L. Sladen, in charge of the Bee Investigation work on the various experimental farms, will speak of some line of his investigations. "Beeswax Production" will be discussed by Mr. W. A. Chrysler, of Chatham, and Mr. G. A. Deadman, of Brussels, will deal with "The use of shallow supers in connection with the regular size." Comb honey has been successfully produced by Mr. S. B. Bisbee, of Beamsville, and his experiences will be valuable and interesting. Special apiary appliances will be explained by Mr. E. T. Bainard, of Lambeth, and Mr. W. J. Craig, of Brantford.

Of special interest from the social side of the convention will be the banquet on Wednesday evening, at which Mr. Couse will speak of the "Past Presidents of the Ontario Beekeepers' Association." Mr. Couse has been a member continuously since the association was organized, and for many years held prominent positions on the executive committee. His personal acquaintance with the past presidents enables him to handle his subject in a very interesting and able manner.

The program will be ready for distribution shortly, and may be had by applying to the secretary-treasurer.

MORLEY PETTIT.

Ontario Agricultural College, Guelph

HONEY AND BEESWAX

CHICAGO, Oct. 18.—The market has been active and stocks have been very much reduced since the beginning of the month.

Prices are ranging at from 15@16c per pound for the fancy to extra fancy, and 14@15c per pound for the No. 1 grade. Amber grades from 13@14c per pound less. Extracted, the best grades of white are bringing 8c per pound, light ambers about 7c per pound, and the dark ambers at 5@6c per pound.

Beeswax, 30@32c per pound.

R. A. BURNETT & CO.

KANSAS CITY, MO., Oct. 18.—The honey market is more or less slow with us, on account of the large amount of native honey which has been placed with the grocery trade in this and the surrounding markets.

Fancy white comb honey, 24 section cases, is jobbing at \$3.00 per case; No. 2 at \$2.75 per case. There is quite a little poor honey coming to this market.

There is a fairly good demand for extracted honey at 8½c a pound for the white clover, 8c for the western light alfalfa, and 6@7c for dark southern honey.

C. C. CLEMONS PRODUCE COMPANY.

SAN ANTONIO, Oct. 17.—Wholesale prices on bulk comb and extracted honey continue very firm and stocks are light. No carlots are being offered. Local offerings by pro-

ducers in drop shipments qualities are, bulk comb honey 9c basis, and extracted 7c basis. In and near points where large bodies of National Guard are mobilized honey is readily bringing as high as 10c per pound, extracted basis. Beeswax prices are firmer, 27c cash to 30c exchange, being offered by dealers.

SOUTHWESTERN BEE CO.

CINCINNATI, Oct. 16.—The demand for comb honey is not as good as it was last season. We are selling No. 1 comb honey, 24 sections to the case, at \$3.75 per case; lower grades are not wanted at any price. White clover extracted honey in 60-pound cans at 7½@9c. Amber extracted in barrels from 6½@7½c. The above are our selling prices, and we buy at less than the above prices. We are paying 28c a pound for choice bright yellow beeswax.

THE FRED W. MUTH COMPANY.

NEW YORK, Oct. 18.—The new crop of honey from nearby is now beginning to arrive in small lots, but the market is still un-

settled, and prices are not firmly established. We are of the opinion that comb honey will sell as follows:

Number 1 and fancy white, 14@15c; No. 2 and amber 12@13c; buckwheat and dark, 10@11c. Extracted white clover, 7@7½c; light amber, 6½@7c; buckwheat, 6½@7c, and West India honey continues to arrive quite freely and prices are ranging from 5@6c per gallon, according to quality.

Beeswax is selling at 30@31c for domestic and 28@29c for West India.

HILDRETH & SEGELKEN.

DENVER, Colo., Oct. 19.—We are selling new crop comb honey in the local market at the following jobbing prices: Fancy, per case of 24 sections, \$3.38. No. 1, \$3.15; No. 2, \$2.93. White extracted, 8½@8¾c per pound; light amber, 8@8¼c per pound, and amber 7@8c per pound. We pay 26c per pound in cash and 28c per pound in trade for clean, average yellow beeswax delivered here.

THE COLO. HONEY PRODUCERS' ASS'N
F. Rauchfuss, Mgr.

Lyon & Healy-Chicago

(The World's Largest Music House)

Semi-annual clearing sale of used pianos at cost—realizing prices. Write today for complete price-list. Pianos guaranteed and shipped on approval at our risk for all expenses. Good Upright pianos, \$75, \$100, and \$125—better pianos, slightly used, \$150, \$175, and \$200 and upward. Fine used Baby and Parlor Grand Pianos, \$300, \$325, \$350, \$375 and \$400. Cash prices to every one alike, but easy payment terms at simple interest to suit your convenience.

Refer to any bank, merchant or to the American Bee Journal, which please mention when answering this advertisement.

LYON & HEALY, CHICAGO, ILLINOIS

HONEY JARS

25 1-pound screw cap flint glass jars; 1 gross crates, \$4.75. Discount on quantities. We carry several styles of jars.

Light honey, clover flavor, two 60-pound cans, 9 cts. per pound. Sage honey, 9½ cts. per pound. Sample, 10 cts. White comb honey.

Catalog of bees and supplies free.

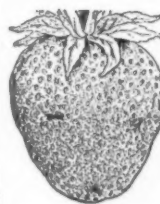
I. J. STRINGHAM

105 Park Place, N. Y.

APIARIES: Glen Cove, L. I.

Biggle Bee Book.—This is a very small cloth-bound, well gotten up book. Its size is 4x5½ inches, and it was designed to be carried in the pocket of the amateur beekeeper. It contains concise information regarding the best practice in bee culture. Price, by mail, 50 cents, or with the American Bee Journal one year, \$1.35.

"ROUGH ON RATS" ends RATS, MICE, Bugs, etc. Don't Die in the House. Unbeatable Exterminator. Ends Prairie Dogs, Gophers, Ground Hogs, Chipmunks, Weasels, Squirrels, Crows, Hawks, etc. The Recognized Standard Exterminator at Drug & Country Stores. Economy Sizes 25c, 50c, Small 15c. Used the World Over. Used by U. S. Gov't. Rough on Rats Never Fails. Refuse ALL Substitutes.



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Trial Subscription To Fruit and Garden Paper

Tells about planting, pruning, spraying and selling fruit and garden truck.

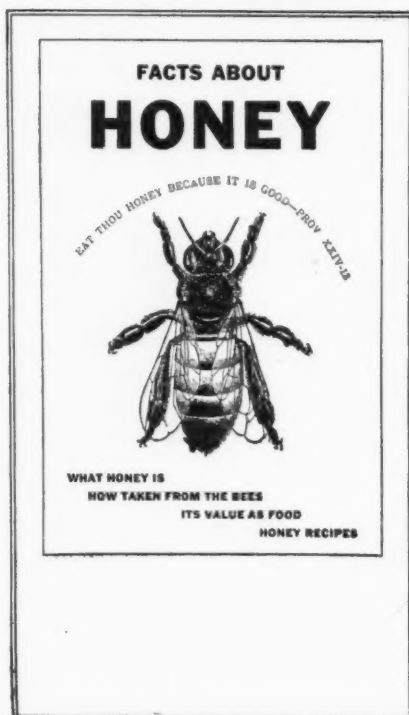
Ask Us Your Hard Questions.

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

Fruiter and Gardener, 1111 Main St. Mt. Vernon, Ia.

A Modern Bee Farm, by Samuel Simmins. The author is a live English beekeeper. He has kept up with the progress in this line not only in his own country, but all over the world. His views are determined, but very well taken, and his points are made with an accuracy which is convincing. Cloth bound, 470 pages. Price, postpaid, \$2.00, or with the American Bee Journal, both \$2.75.

FACTS ABOUT HONEY



THE editorial on the "Food Value of Honey," on page 404, of the December American Bee Journal was so highly appreciated, and so many enquiries came for a reproduction of it in pamphlet form that there was prepared a 16-page booklet for advertising honey containing this and other matter of importance which the consumers ought to know. Size of booklet 5 3/4x9 inches. Weight a scant ounce.

"Facts about Honey" contains the following information illustrated with 17 splendid half tones: What honey is and where gathered; Principal kinds of honey; Different flavors and colors; How produced; Bee-trees and bee hunting; Bees in boxes and gums; The new way of honey production; Movable-frame hives and sections; Comb honey; Comb foundation; Why the bees build straight in the section; Chunk honey; Extracted honey, the honey extractor and manner of extracting; Purity of honey; Granulation of honey, how to melt it; Food value of honey; Is honey a luxury; Honey as health food; Uses in cook-

ing; Fifty recipes for use of honey.

On the last page room enough is left to print the beekeeper's name and the prices he asks for his honey. Or the address may be printed on the front cover page. At the bottom of the last page there is also room to address the booklet to the consumer, after folding it so that no envelope is needed. A gummed "Eat Honey" label or wire clasp is sufficient to hold it together for mailing.

We will furnish these pamphlets at unprecedented low prices, as follows:

Single copy as sample, free.	500 copies, postage extra	-	\$ 5.00
Less than 30 copies, postpaid, each \$.03	1000 " " "	-	9.00
30 " " "	2000 " " "	-	17.00
50 copies, postage extra - .75	5000 " " "	-	40.00
100 " " " - 1.25	10,000 " " "	-	75.00

For parcel-post shipment, the weight is about 6 pounds per 100 copies.

Printing name and address of producer, with brief price-list of honey on either front or back page: 500 or less, \$1.00; 1000 or more, \$1.50 per thousand.

The pamphlet contains no advertising or address of any kind and is distinctly a positive, unbiased and clear explanation of the usefulness of honey, intended for a reply to the numerous questions usually asked by the uninformed consumer. Send your orders to

American Bee Journal, - Hamilton, Illinois

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BEE-KEEPERS:—

We manufacture Millions of **Sections** every year that are as good as the best. The **CHEAPEST** for the Quality; **BEST** for the Price. If you buy them once, you will buy again.

We also manufacture **Hives, Brood-Frames, Section-Holders and Shipping-Cases.**

Our Catalog is free for the asking.

Marshfield Mfg. Co.,

Marshfield, Wis.



EARLY ORDER DISCOUNTS WILL Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

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START THE SEASON RIGHT

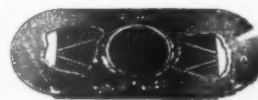
By using **Dittmer Foundation** the bees like it for it's made to just suit them, and is just like the Natural Comb they make themselves.

Send for prices on having your Beeswax made into Comb Foundation, which includes all freight charges being paid.

All other Supplies in stock

Gus Dittmer Company, Augusta, Wisconsin

PORTER BEE ESCAPE SAVES HONEY TIME MONEY



For sale by all dealers.

If no dealer, write factory

R. & E. C. PORTER, MFRS.

Lewistown, Ill., U. S. A.

Please mention Am. Bee Journal when writing

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Beekeepers' Supplies

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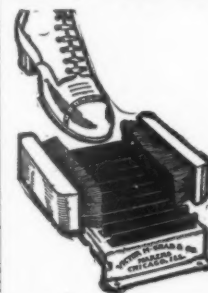
Best Sections, Best Shipping Cases
Best of all Supplies

Best prices you will get for your honey when put up in our sections and shipping cases. "LOTZ" sections and shipping cases have stood the test. Why? Because they are perfect in workmanship, quality and material. Buy LOTZ goods when you want the BEST. Our 1915 catalog ready now. Send your name and get one.

H. S. DUBY & SON, St. Anne, Ill., carry a full line of our goods.

AUG. LOTZ CO. BOYD, WIS.

GET A FOOT SCRAPER WITH YOUR RENEWAL



We still have a small stock of foot scrapers like cut on hand. Although these scrapers cost, postpaid, \$1.00, we will send them out while they last together with a year's subscription to the

American Bee Journal; both for \$1.50.

Postage, 15c extra. Address,

AMERICAN BEE JOURNAL

Hamilton,

Illinois

Lumber That Lasts?

Here's a Convincing Case of an Experienced Beekeeper Who (but let the gentleman tell it himself):



BUCK GROVE, IOWA, February 2, 1916.
"I have been a Cypress man for 10, these many moons. Almost all my dovetail hives are of Cypress, as are bottom-boards, and I think, shallow telescope covers. My hive stands are of Cypress, and stand in the mud and wet all the time and are as solid as when I got the first one some years ago. Cypress is a trifle heavier than white (cork) pine, but not much more than the heavier grade of Pine now used. The fact that it is 'everlasting' compensates for all this."
 (Signed) A. F. BONNEY, M. D.



For a job of repairing or for equipment, the lumber that will give you the greatest real investment value in the market is Cypress, commonly known as the "Wood Eternal." This wood does not rot down like most woods; it lasts and lasts, and LASTS, and LASTS and LASTS. It is the Gopher Wood of the Bible—Noah built his ark of Cypress. Since the days of Noah, Cypress has been famous for endurance under the most trying conditions. Cypress is the one certified Greenhouse Wood. That's "Some" test. Bottom-boards are another.

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There are 41 volumes in the internationally famous Cypress Pocket Library, and each is authoritative in its field, and all are FREE. Vol. 1 is the U. S. Gov't. Report on Cypress—that is a good authority, surely. Vol. 4 is the Barn Book, with plans and specifications for Building; Vol. 36 is the Carpentry Book making easy a dozen hard jobs of carpentry; Vol. 19 is the Canoe and Boat Book; Vol. 37 is the Silo Book. All are free for the asking. Suppose you ask for one or a dozen, right away.

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 1251 Hibernia Bank Building, New Orleans, La.

For quick service address nearest office.

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DON'T FUSS

With your old combs and cappings, but send them to us. We will render them into beeswax for you on shares and pay you cash for your share, or we will make same into

DADANT'S FOUNDATION

for you. If you prefer, we will pay you our best trade price in exchange for BEE SUPPLIES.

Send for our terms. We feel sure that we can save you some money besides saving you a "mussy" job.

BEESWAX WANTED AT ALL TIMES

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